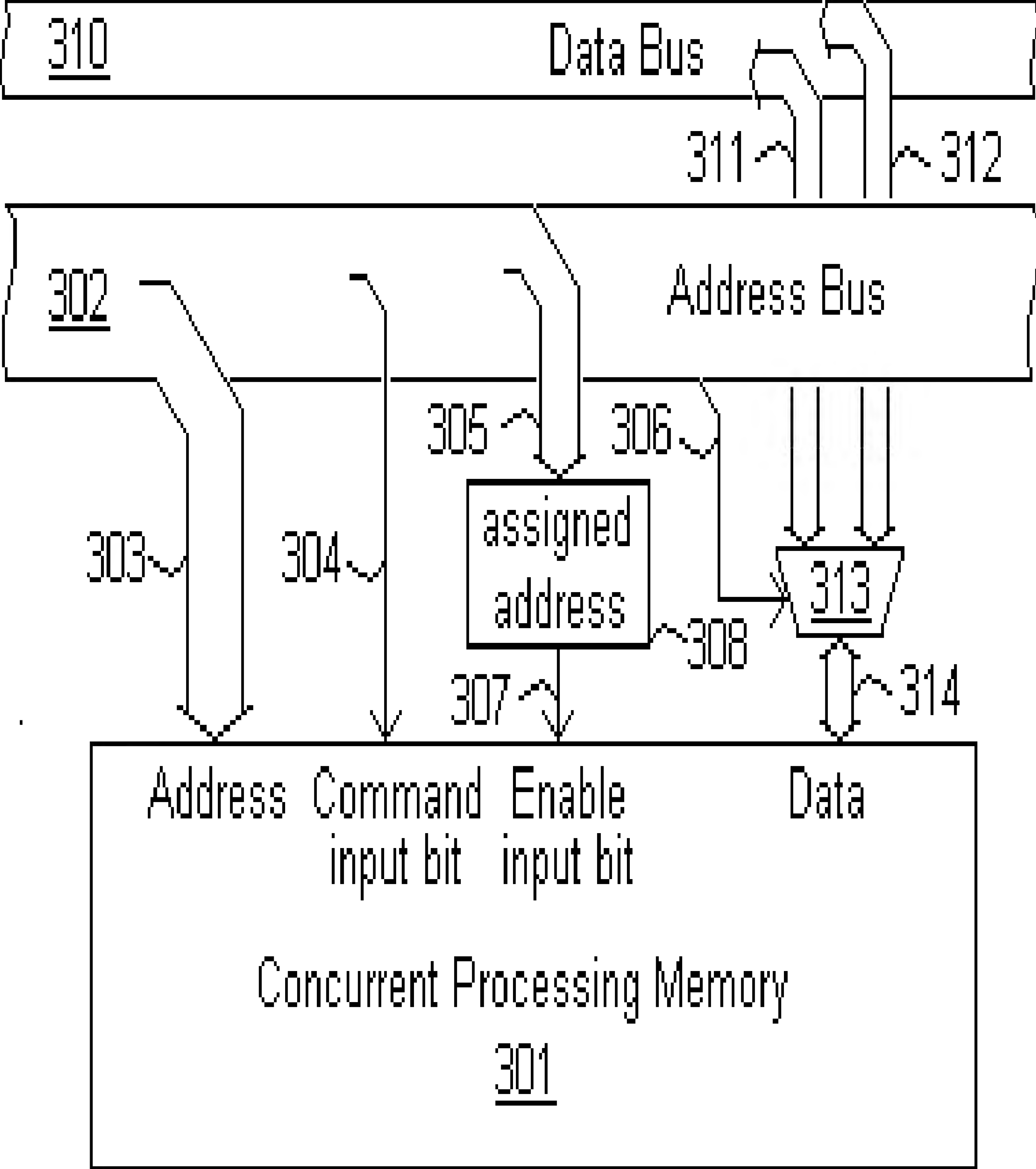
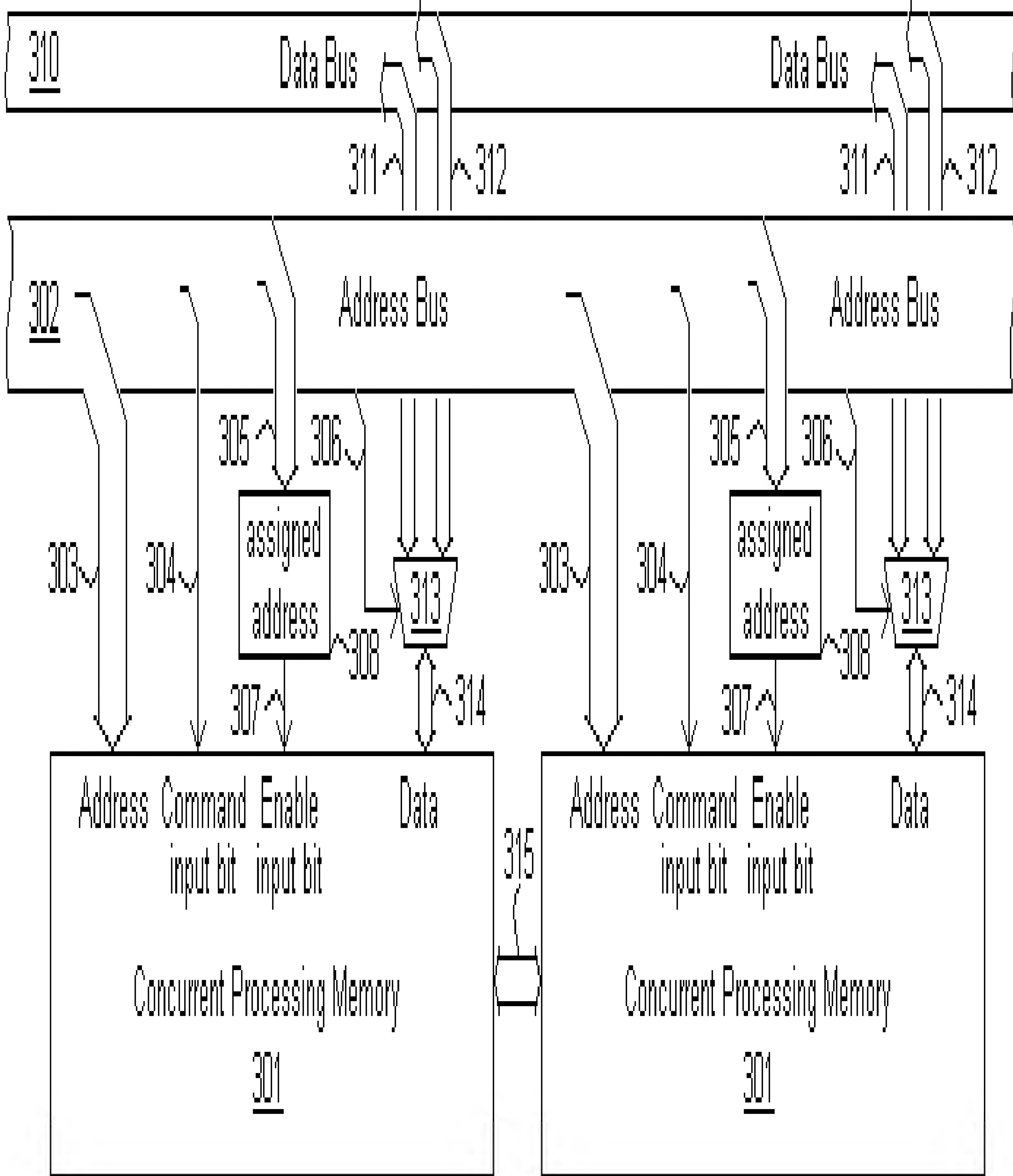


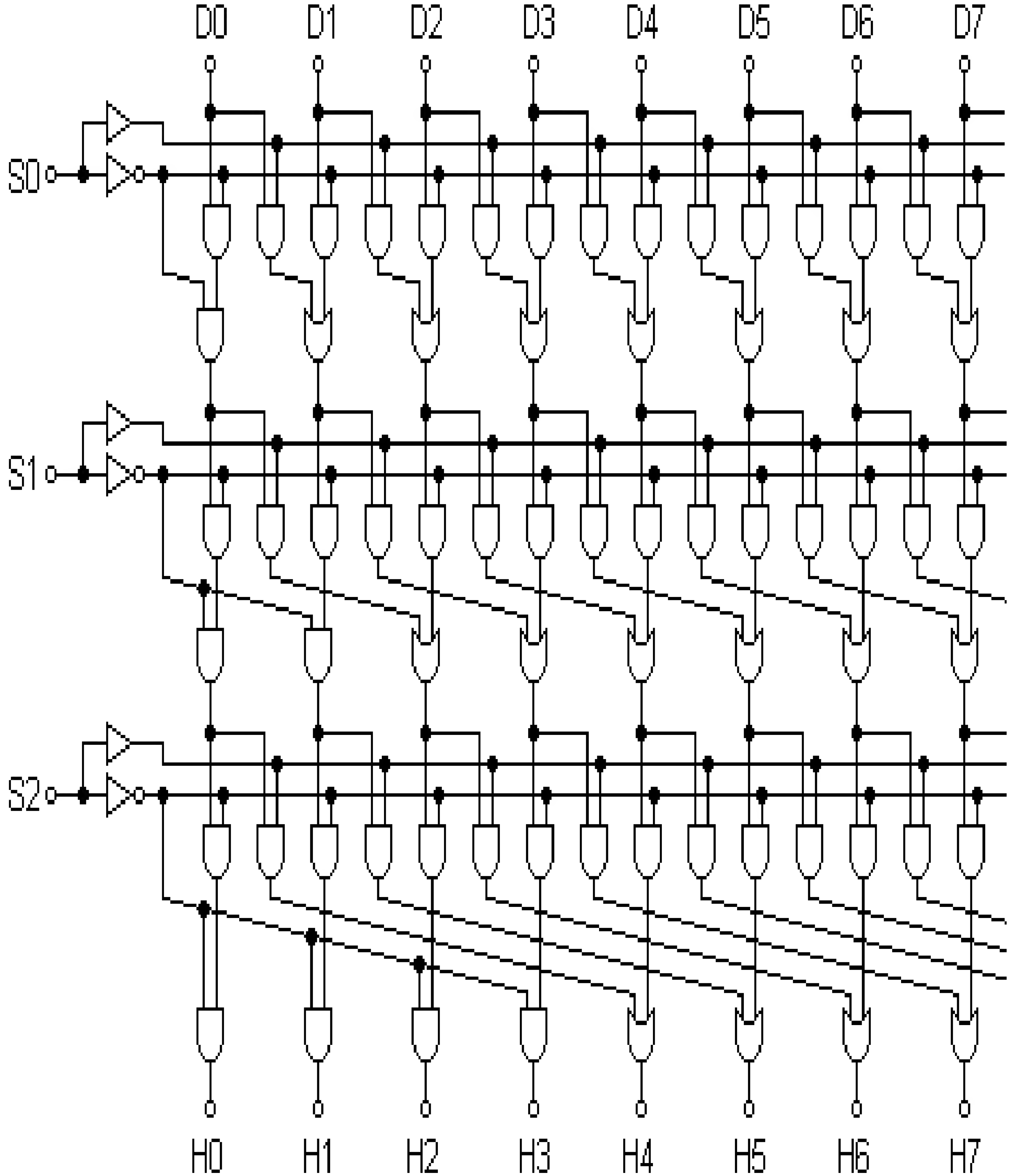
FIG. 1



**FIG. 2**



**FIG. 3**



**FIG. 4**

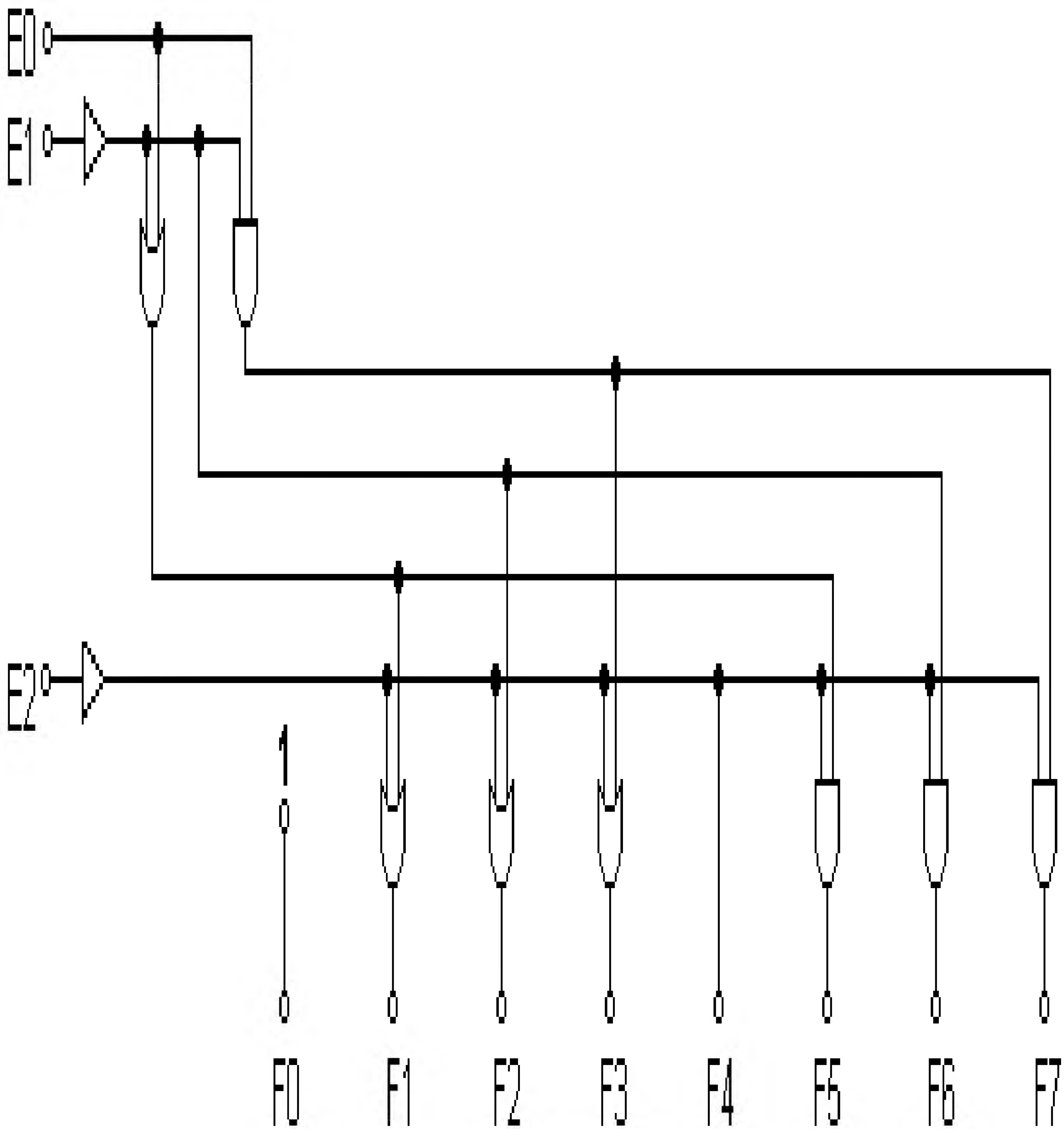
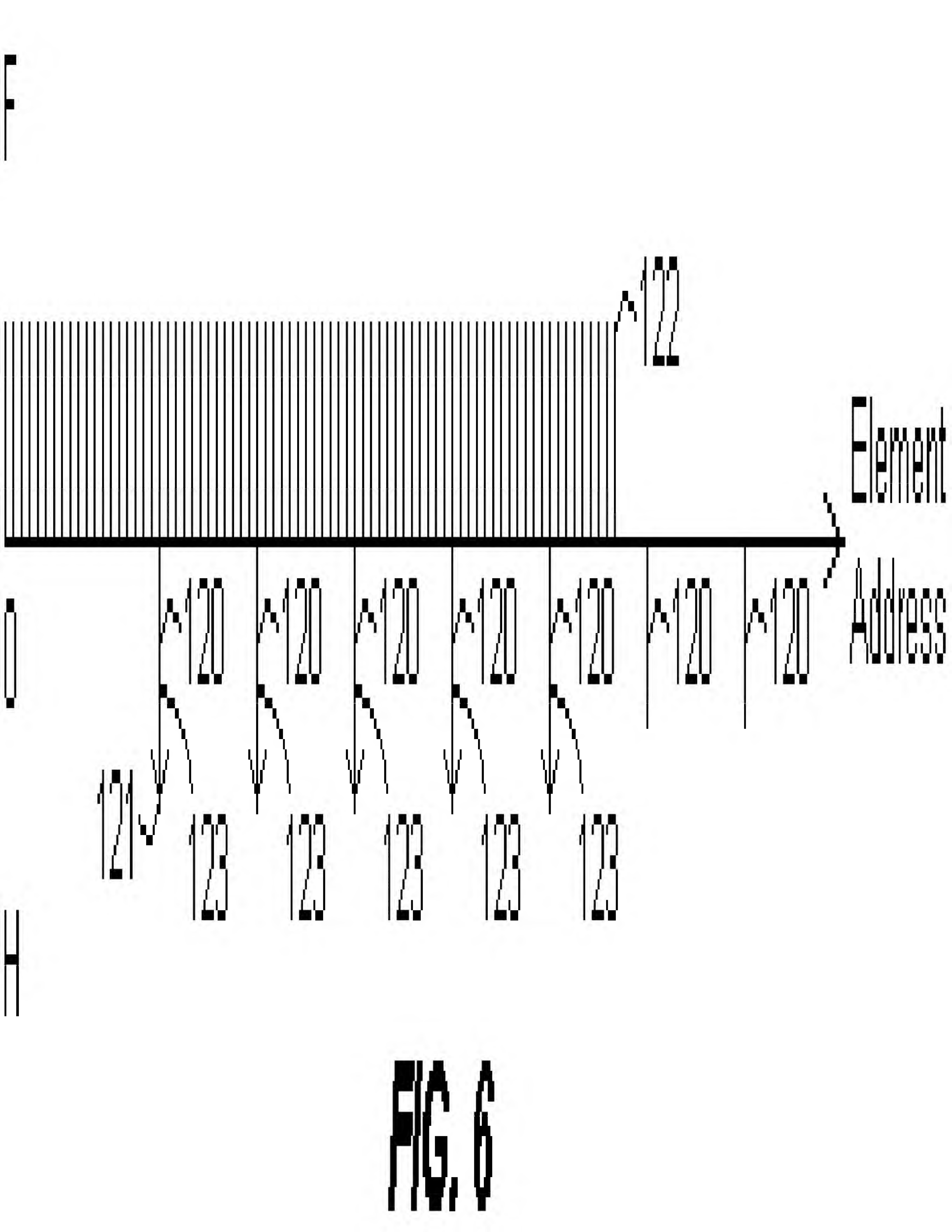
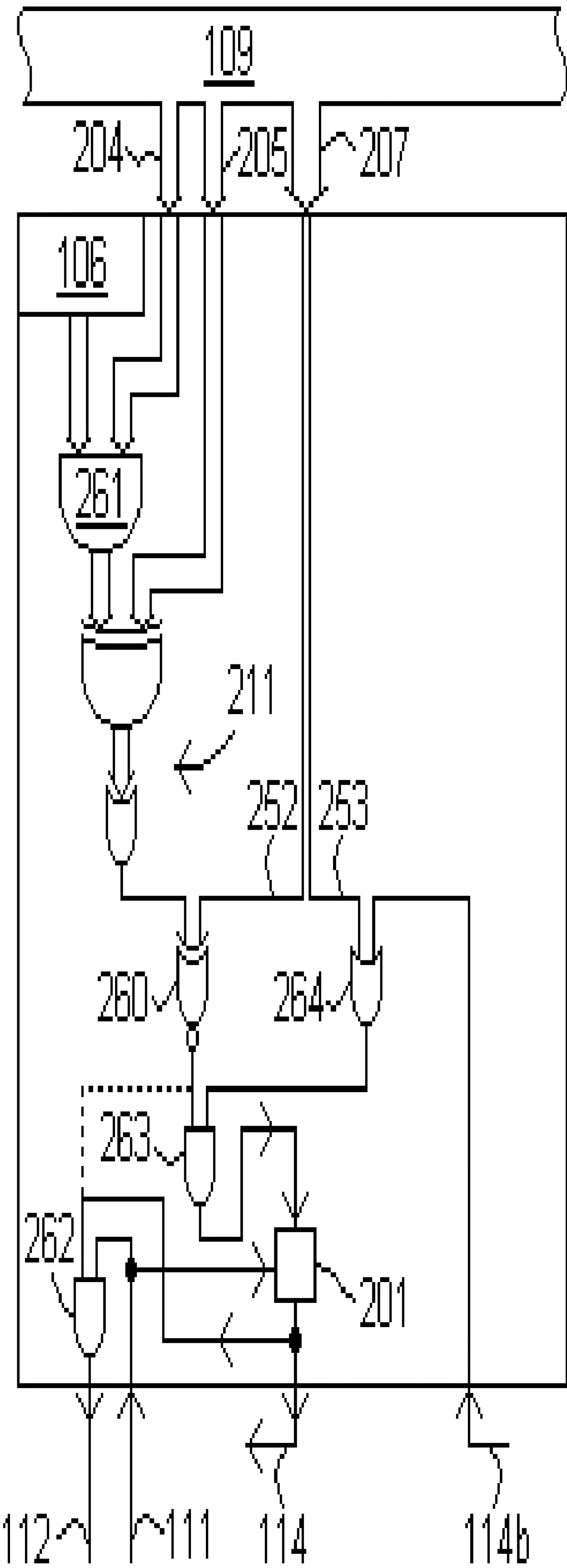


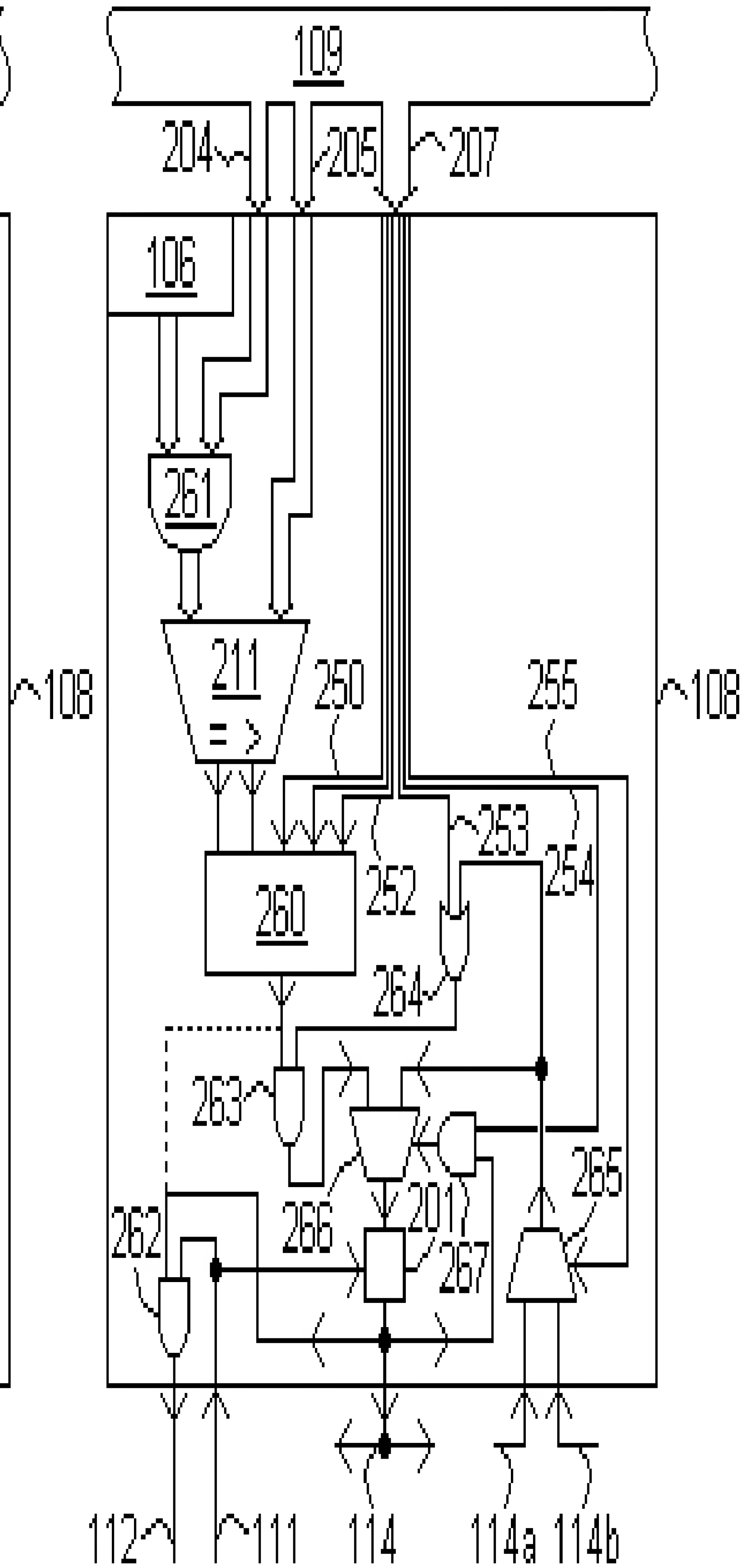
FIG. 5







**FIG. 8a**



**FIG. 8b**



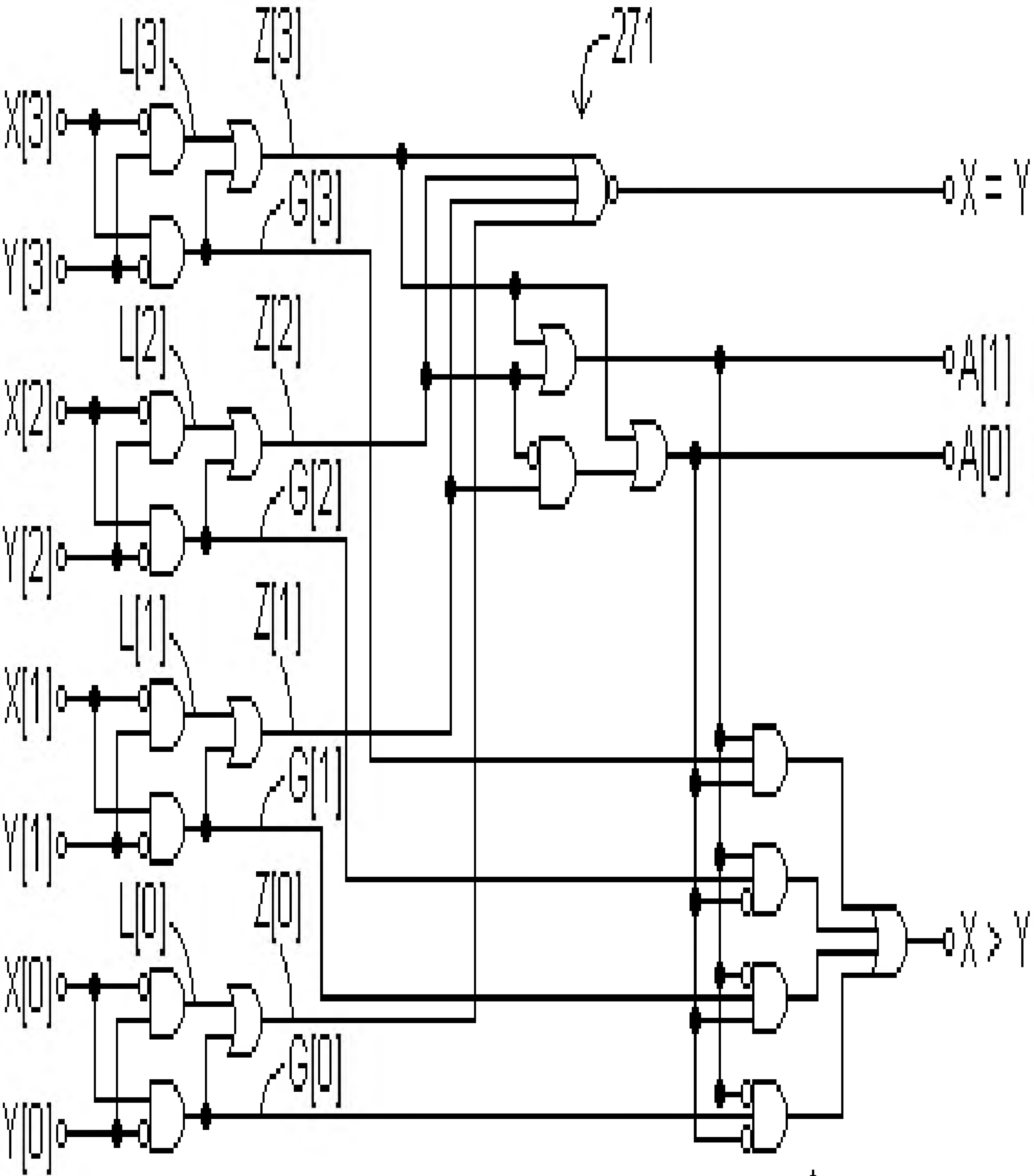
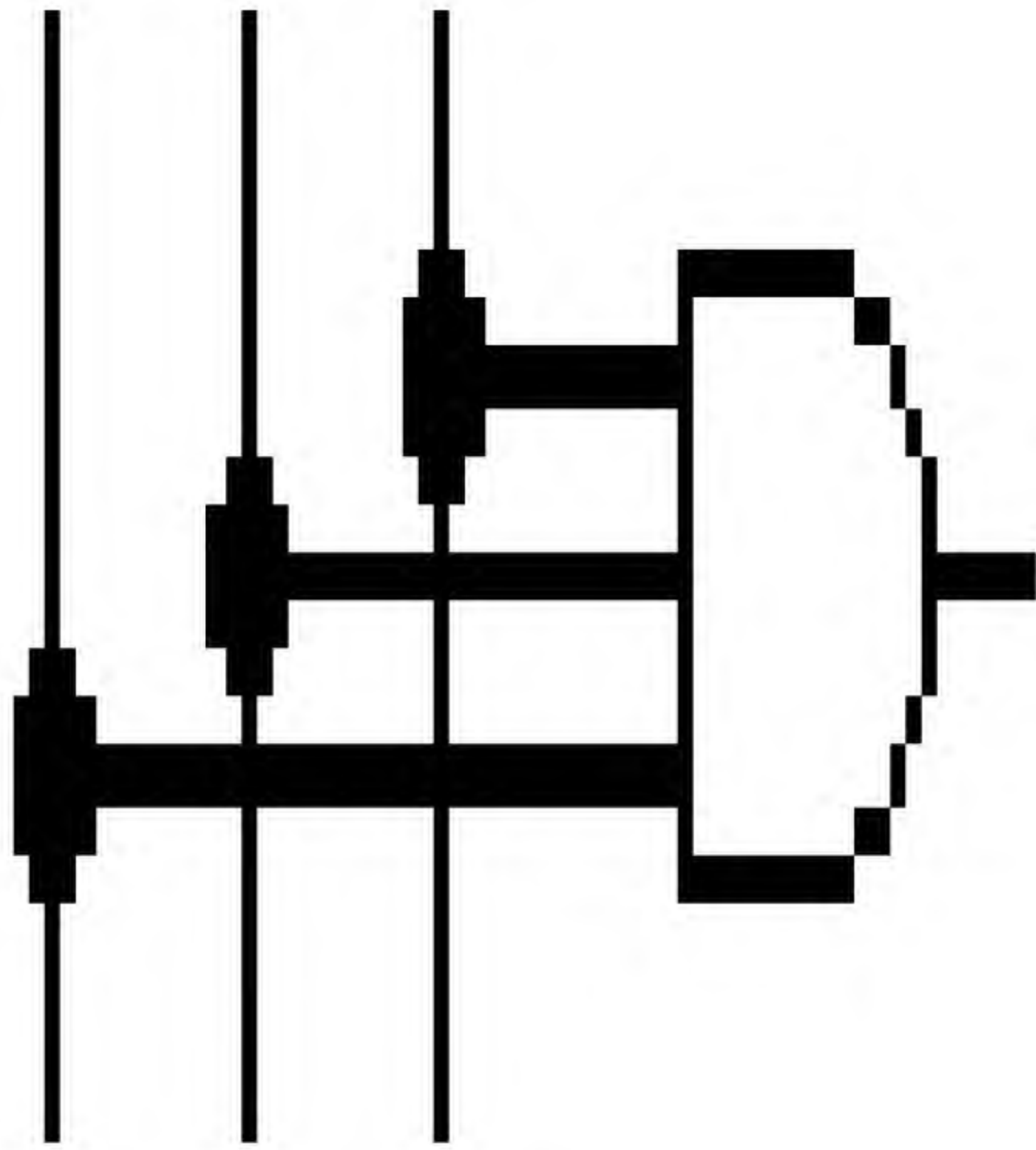
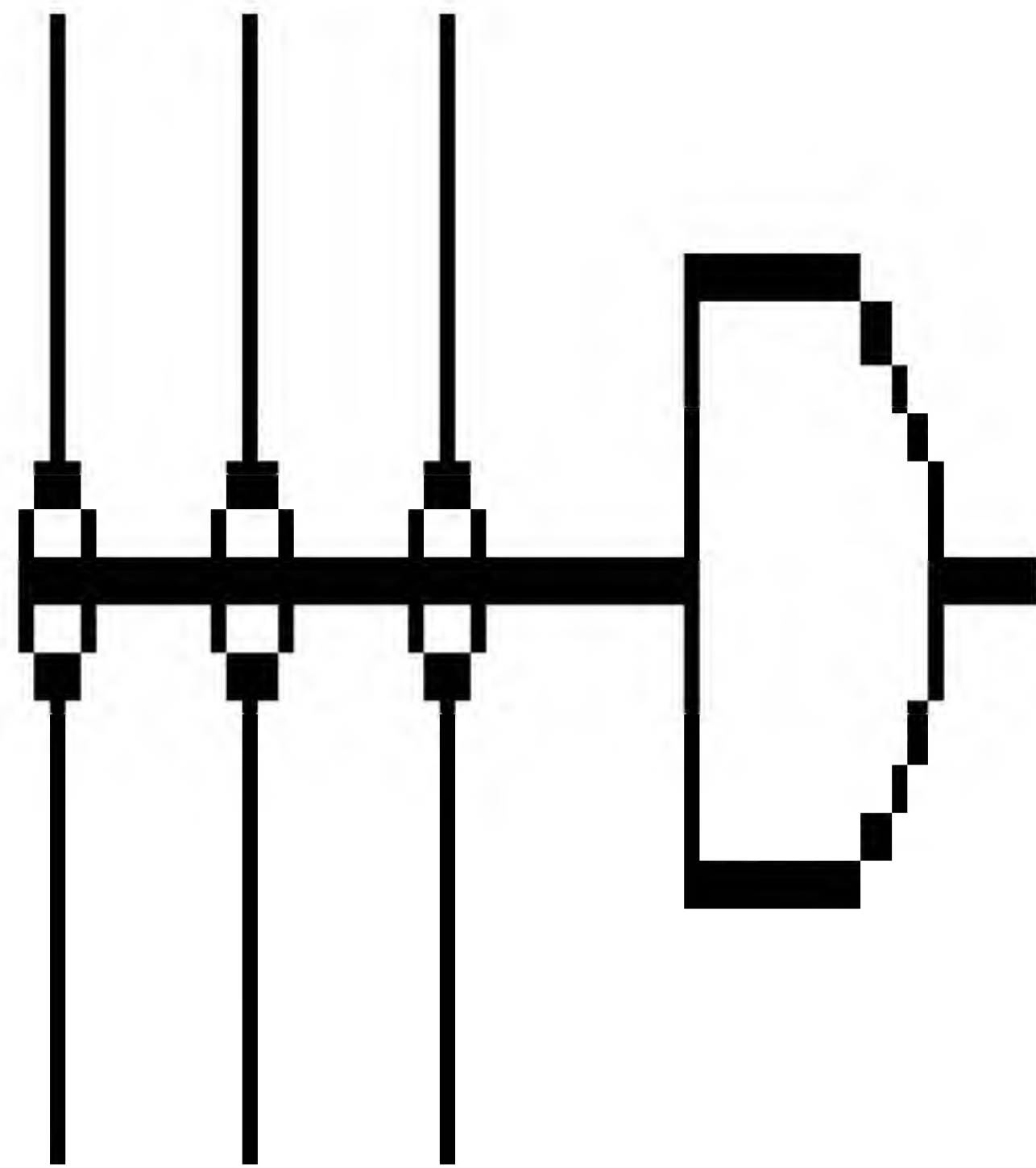


FIG. 9

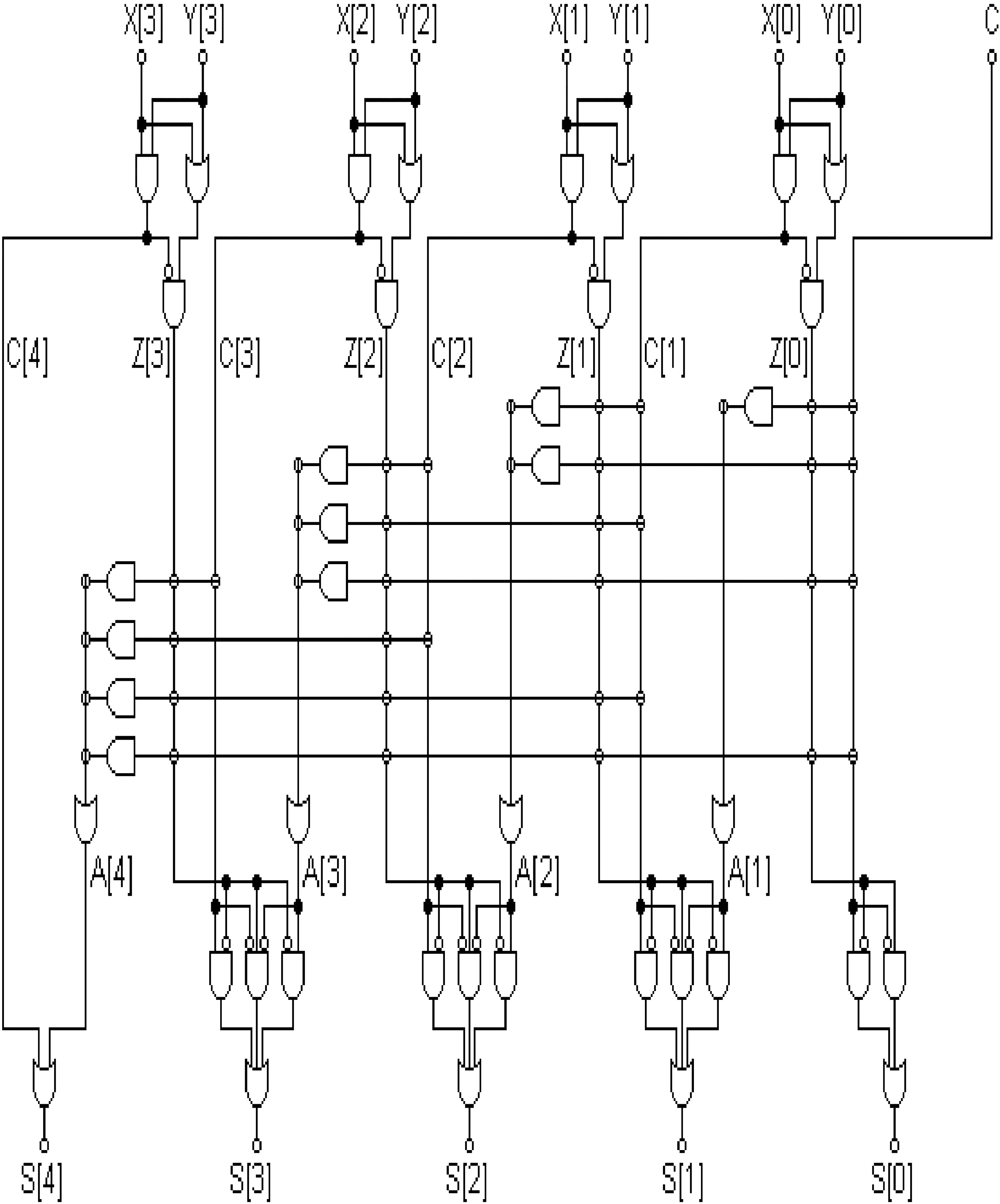


standard



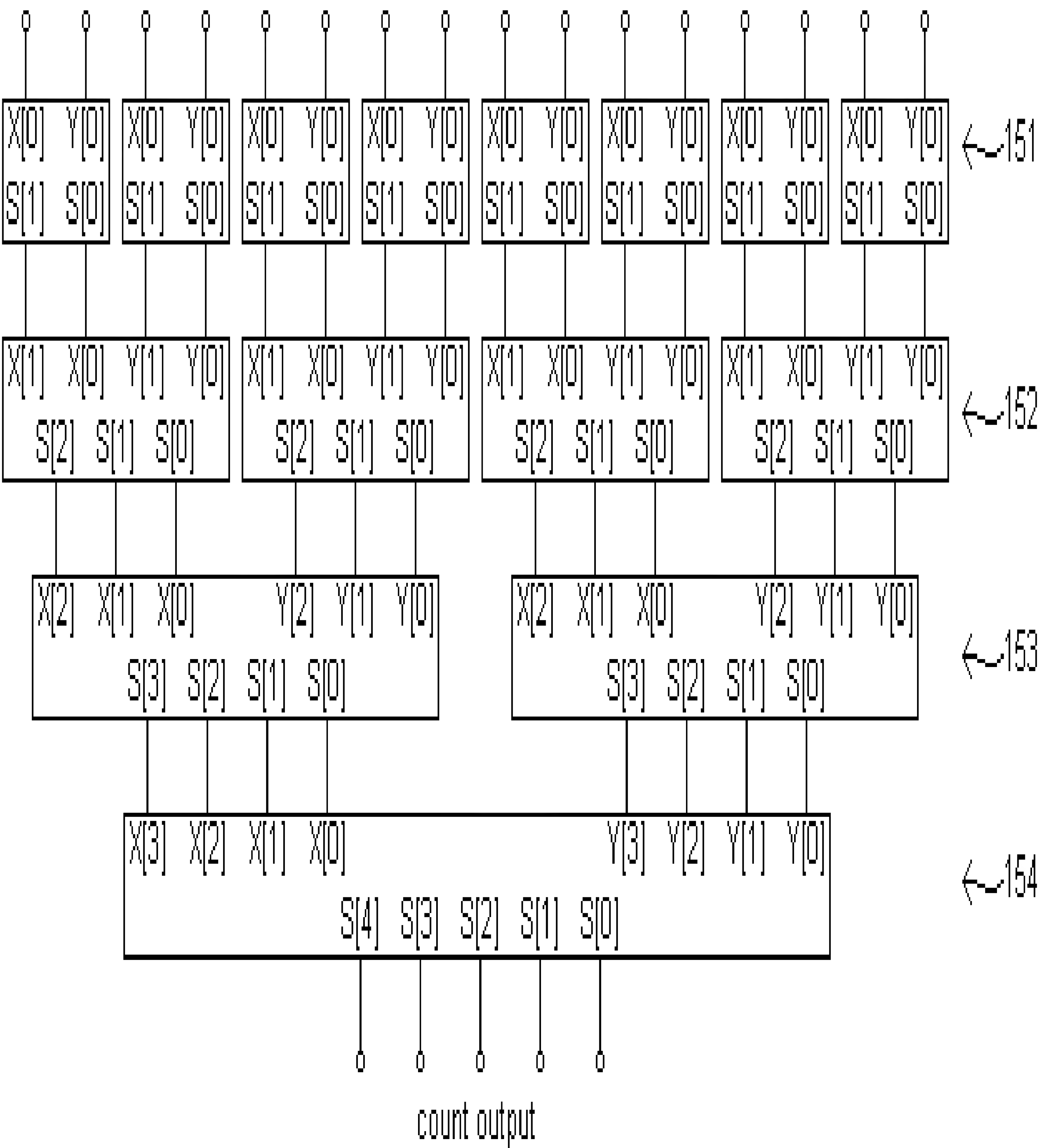
simplified

FIG. 10

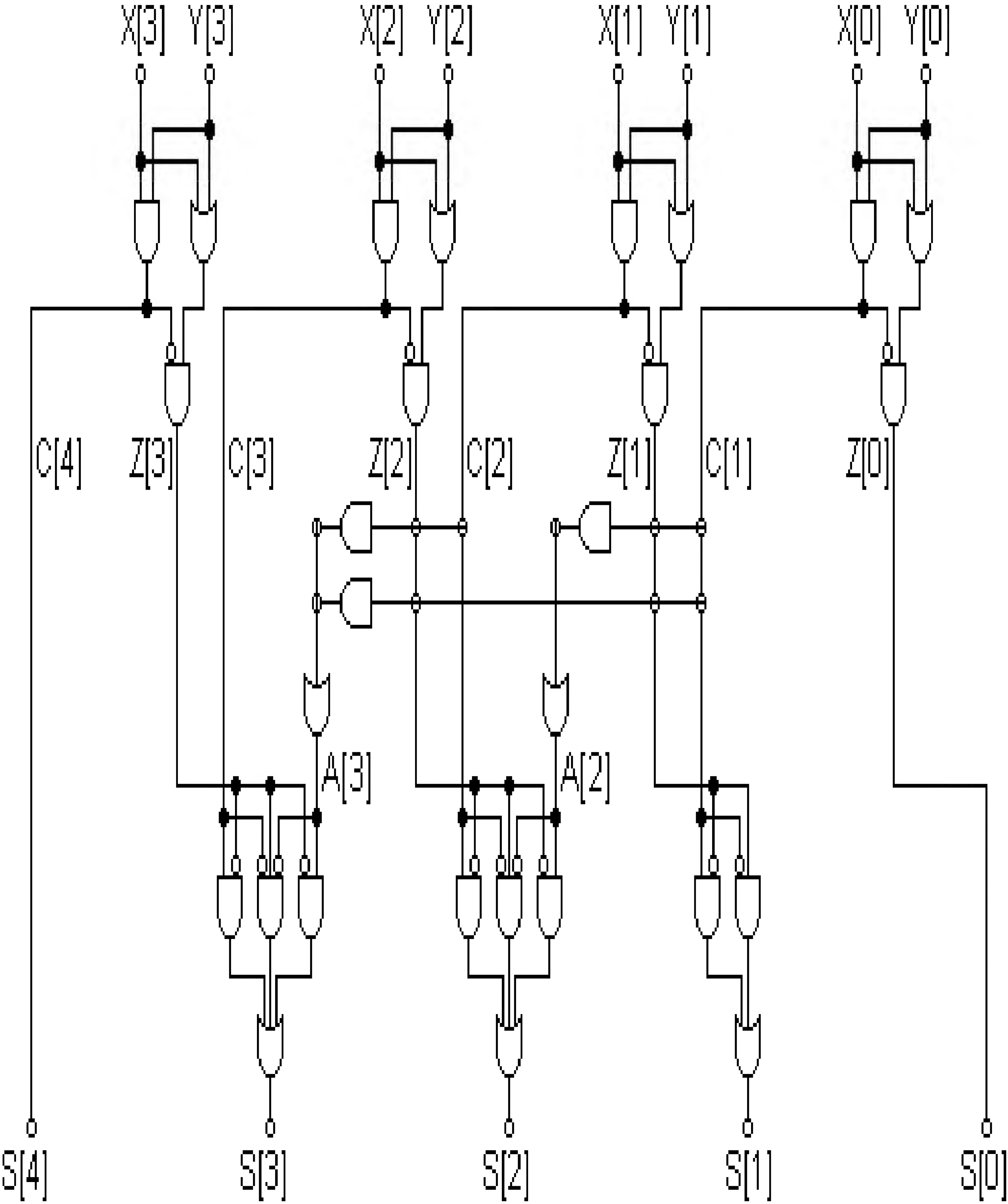


**FIG. 11**

$2^4$  bit inputs



**FIG. 12**



**FIG. 13**

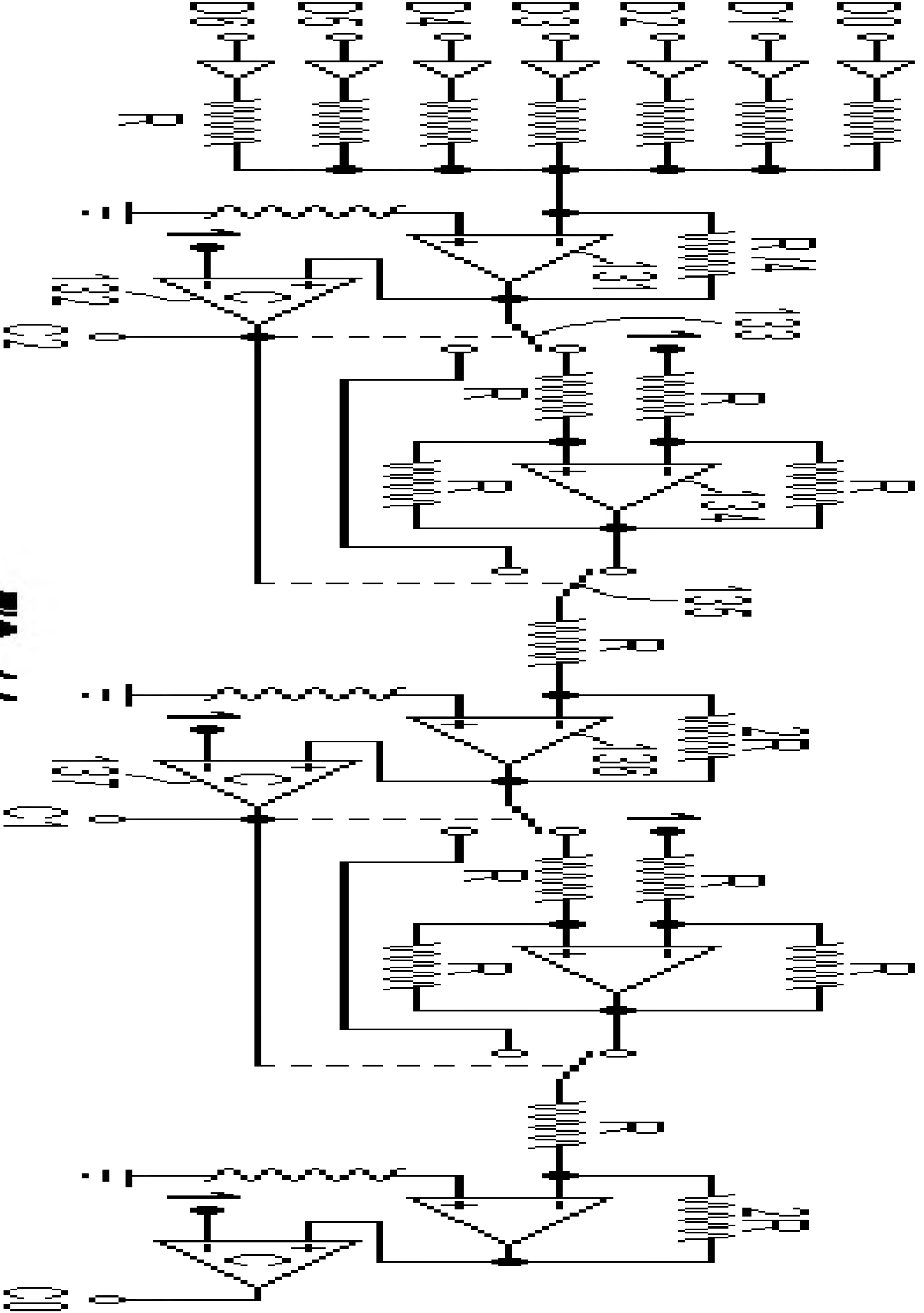


FIG. 14

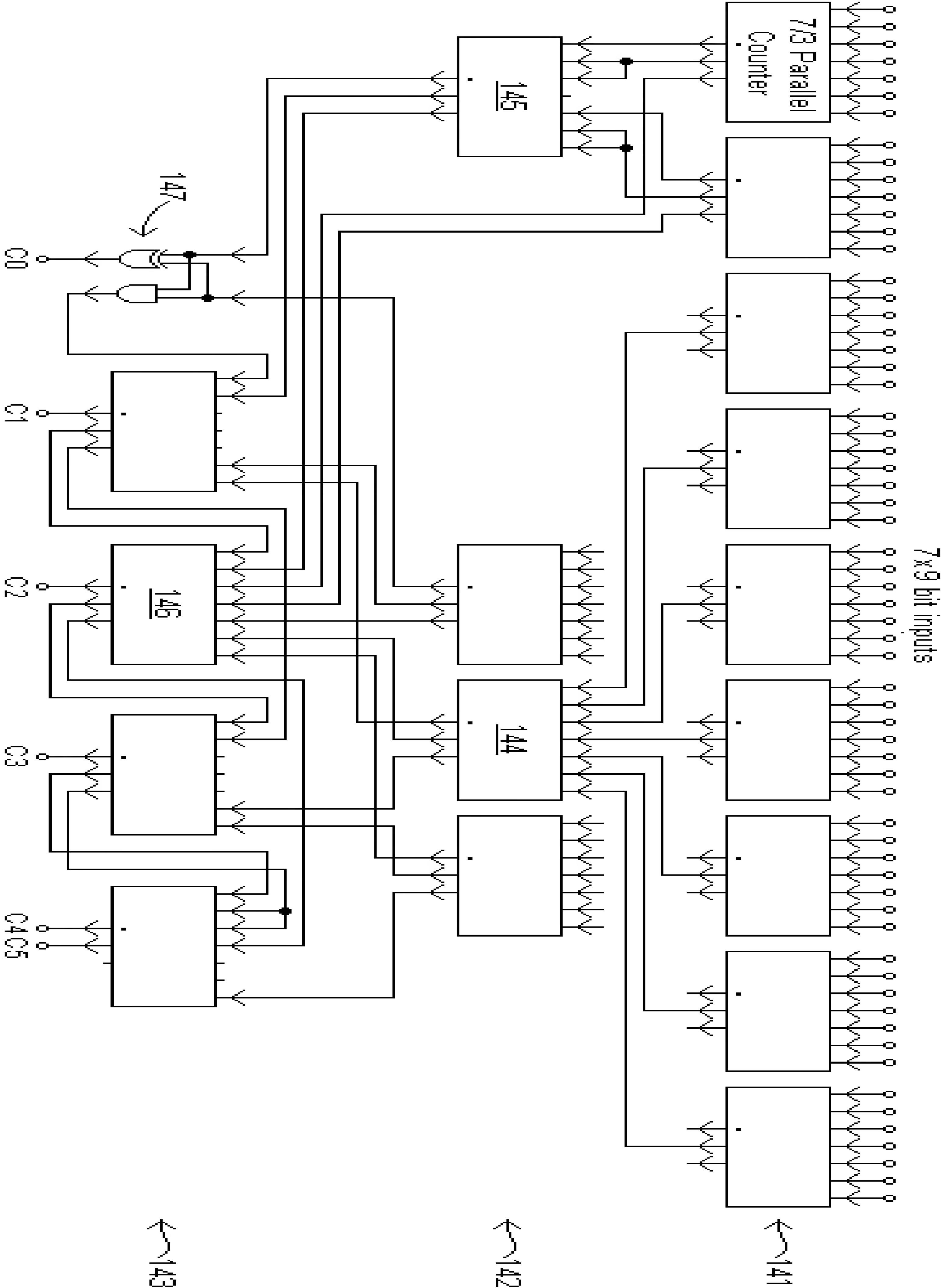


FIG. 15

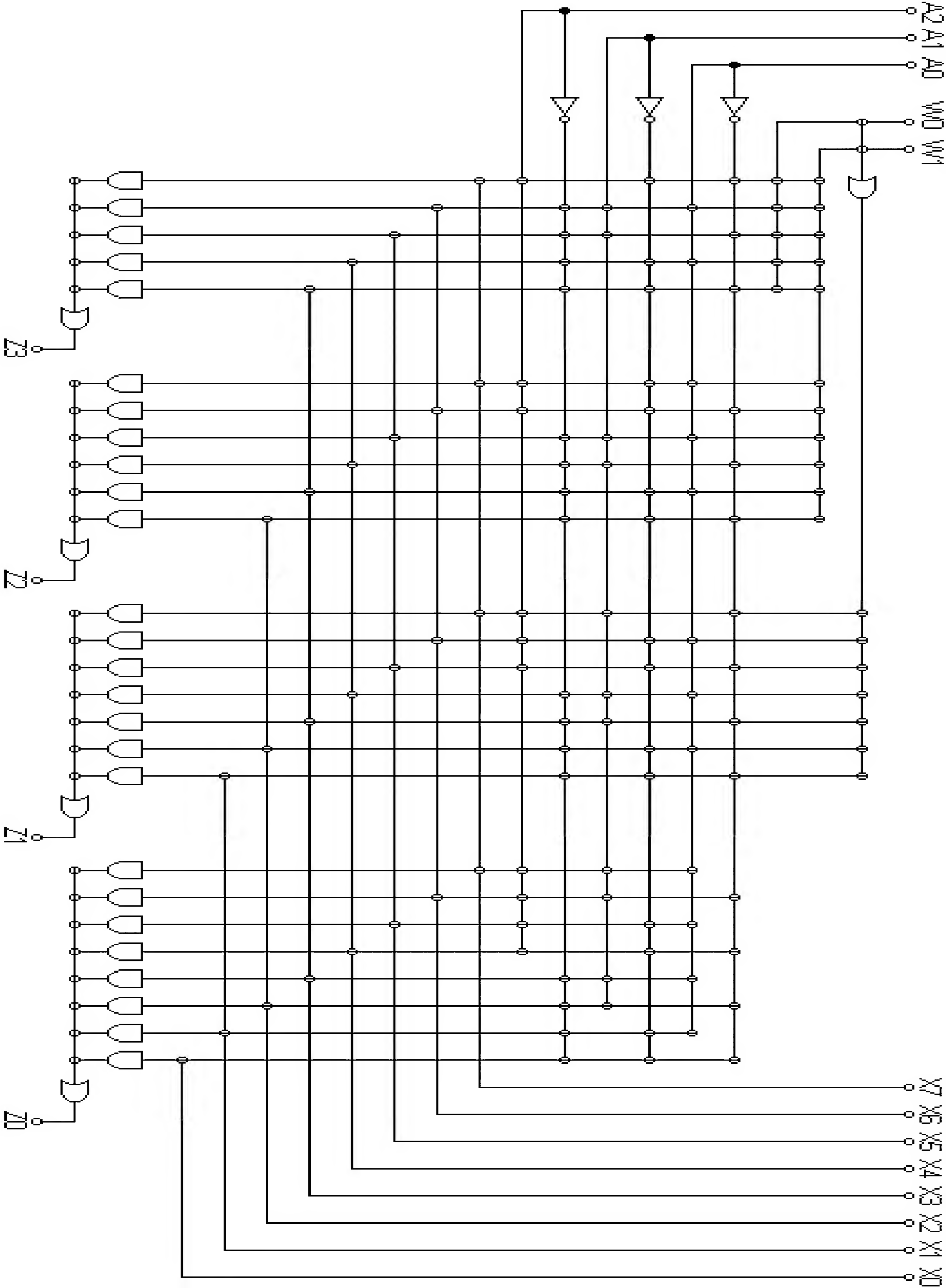


FIG. 16



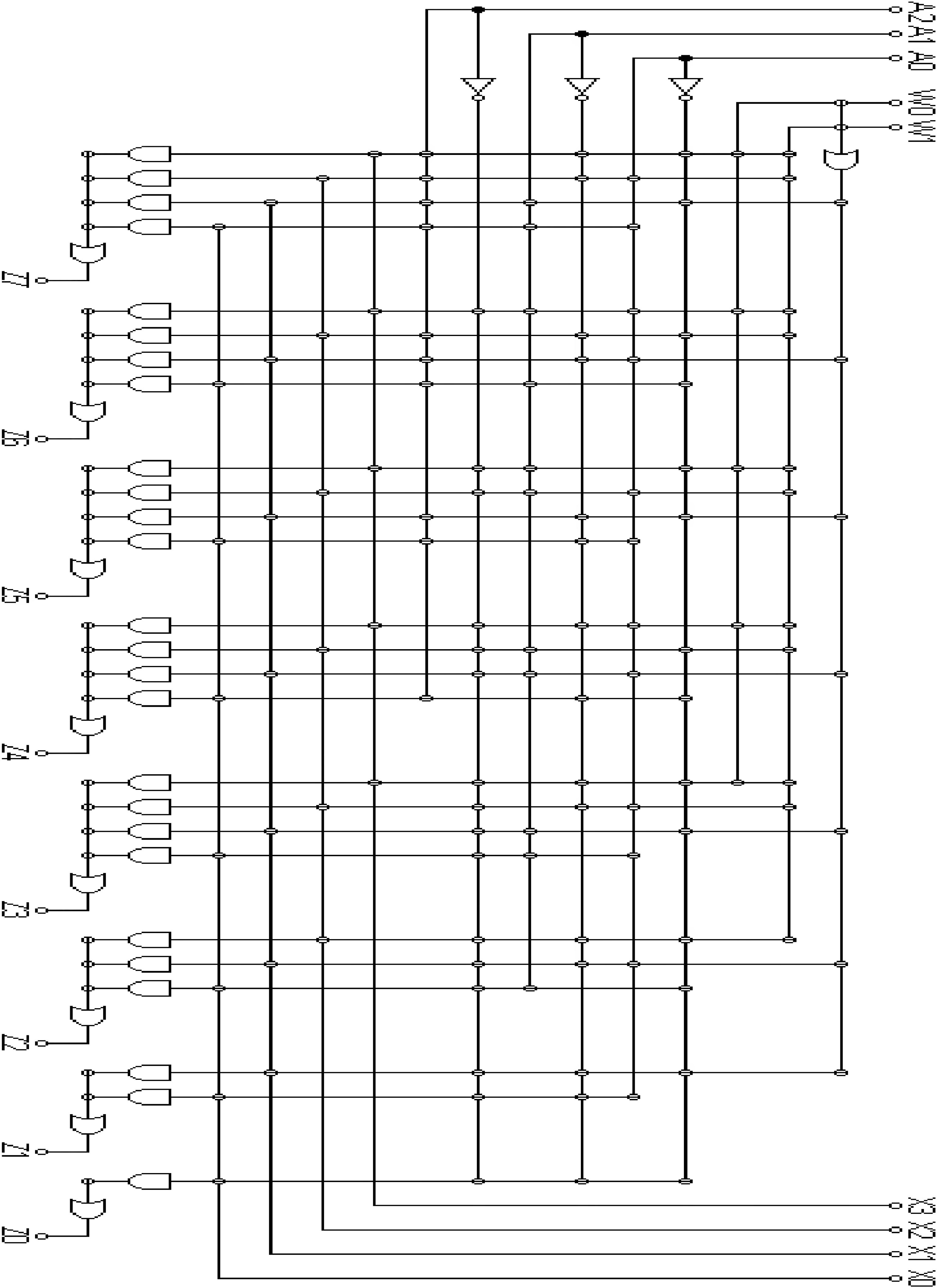


FIG. 17

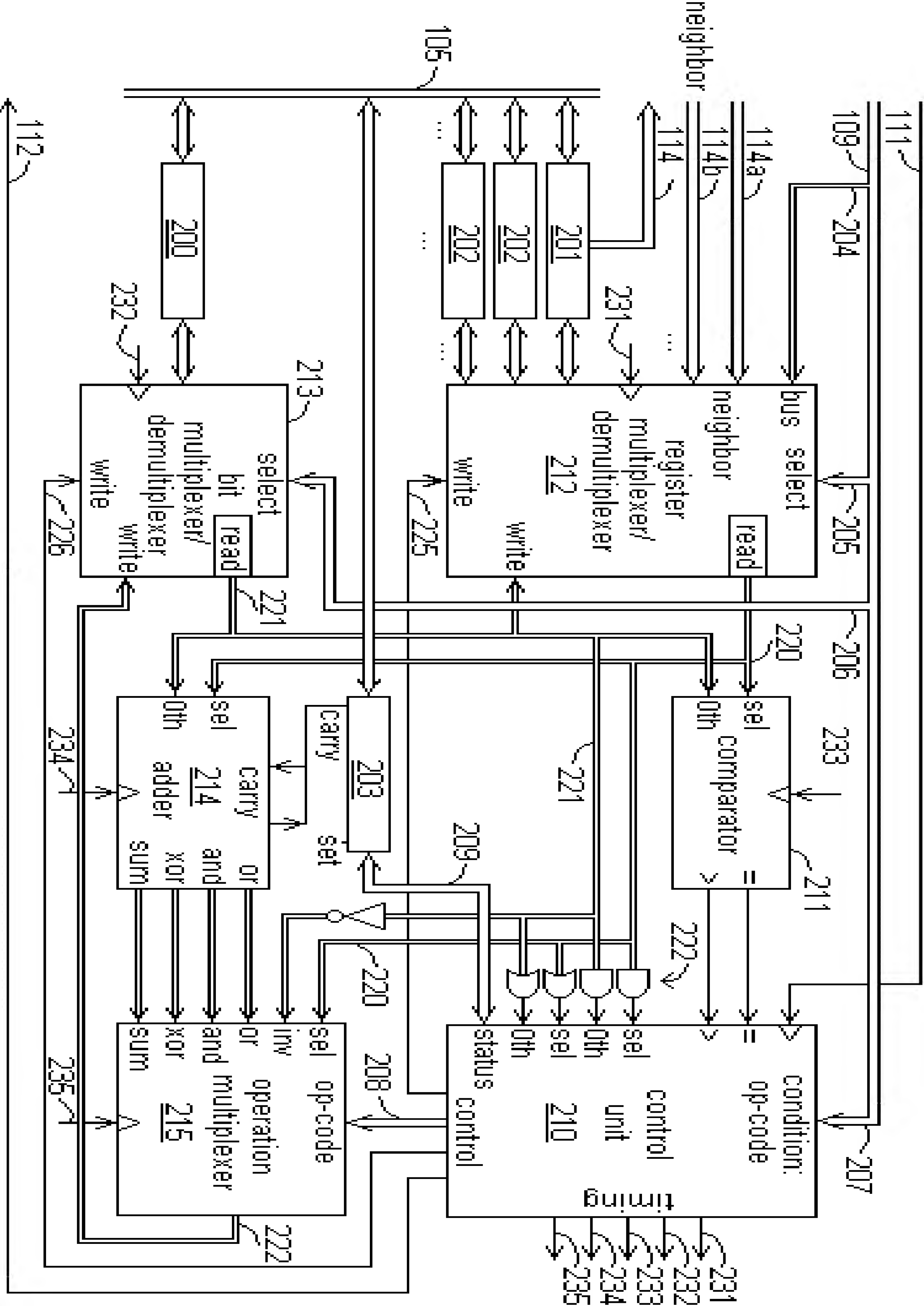
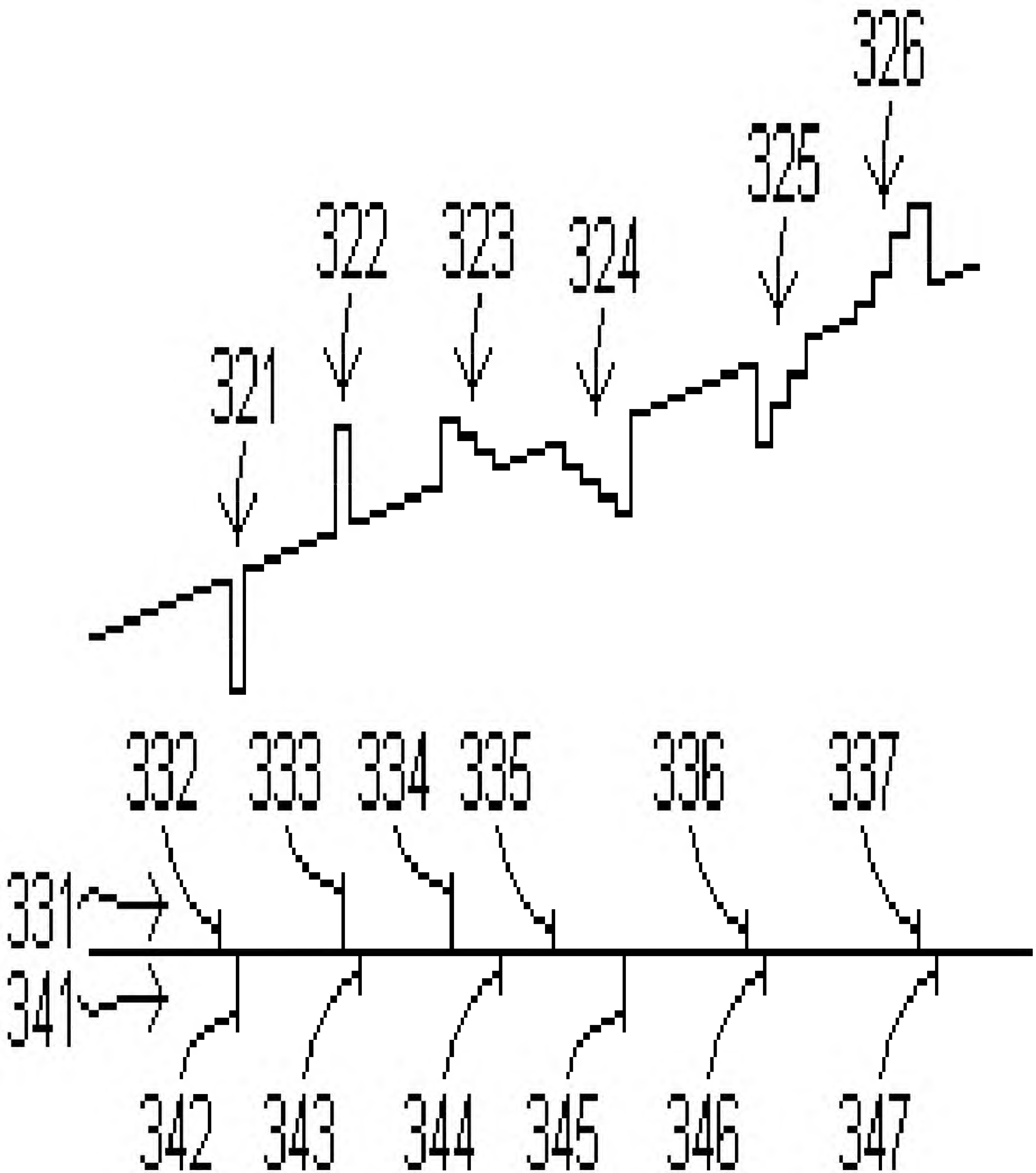


FIG. 18



**FIG. 19**

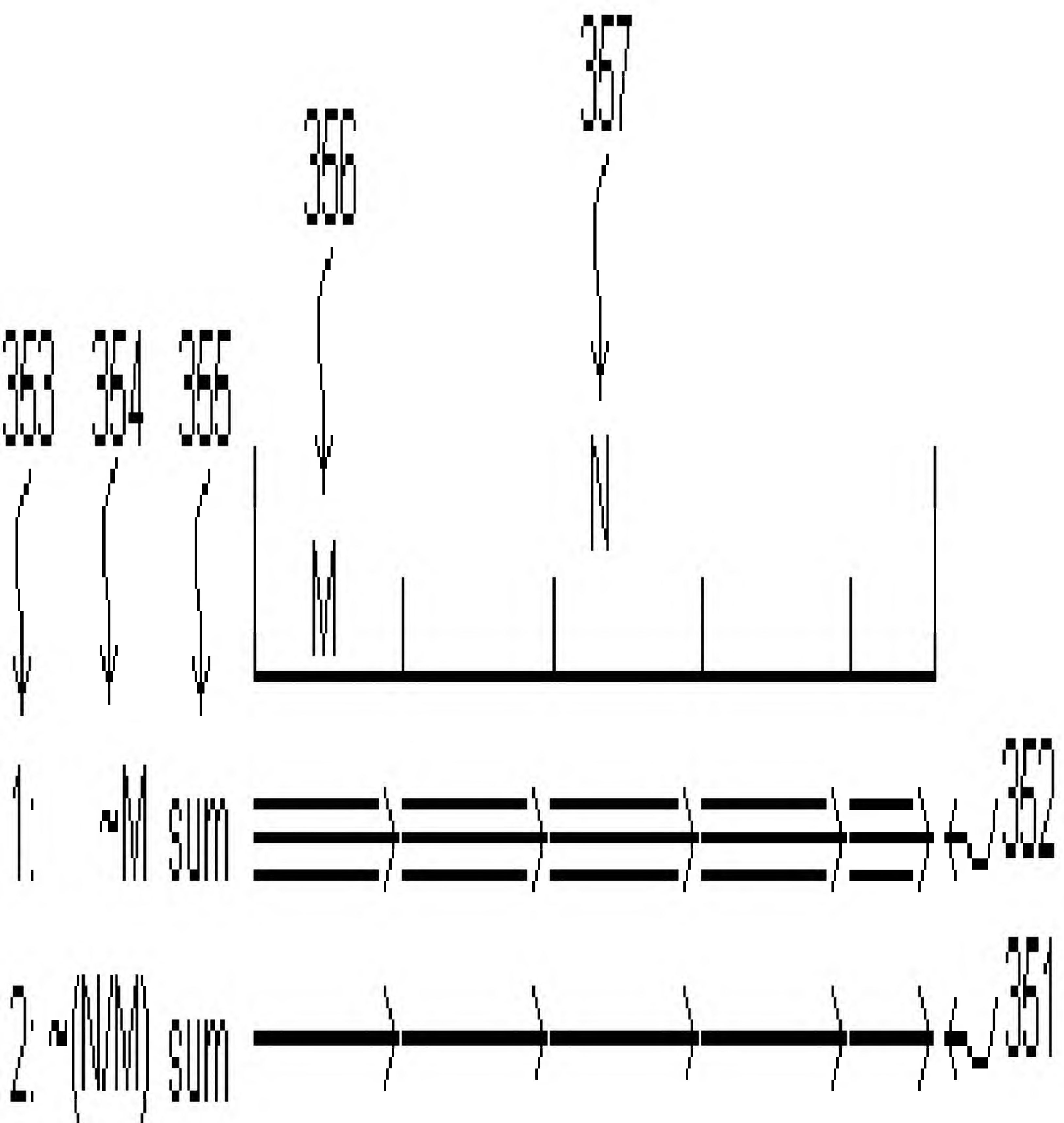
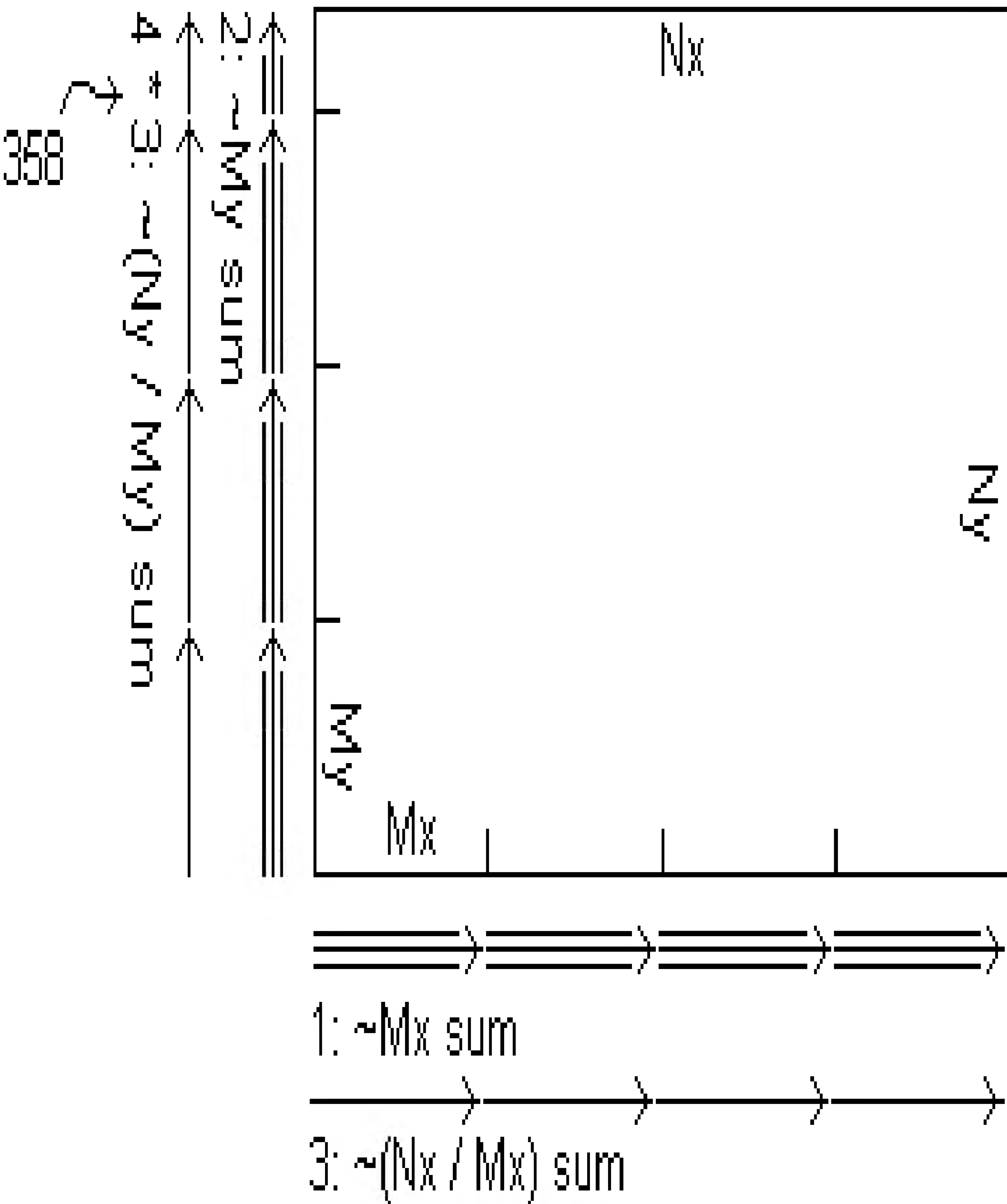


FIG. 20



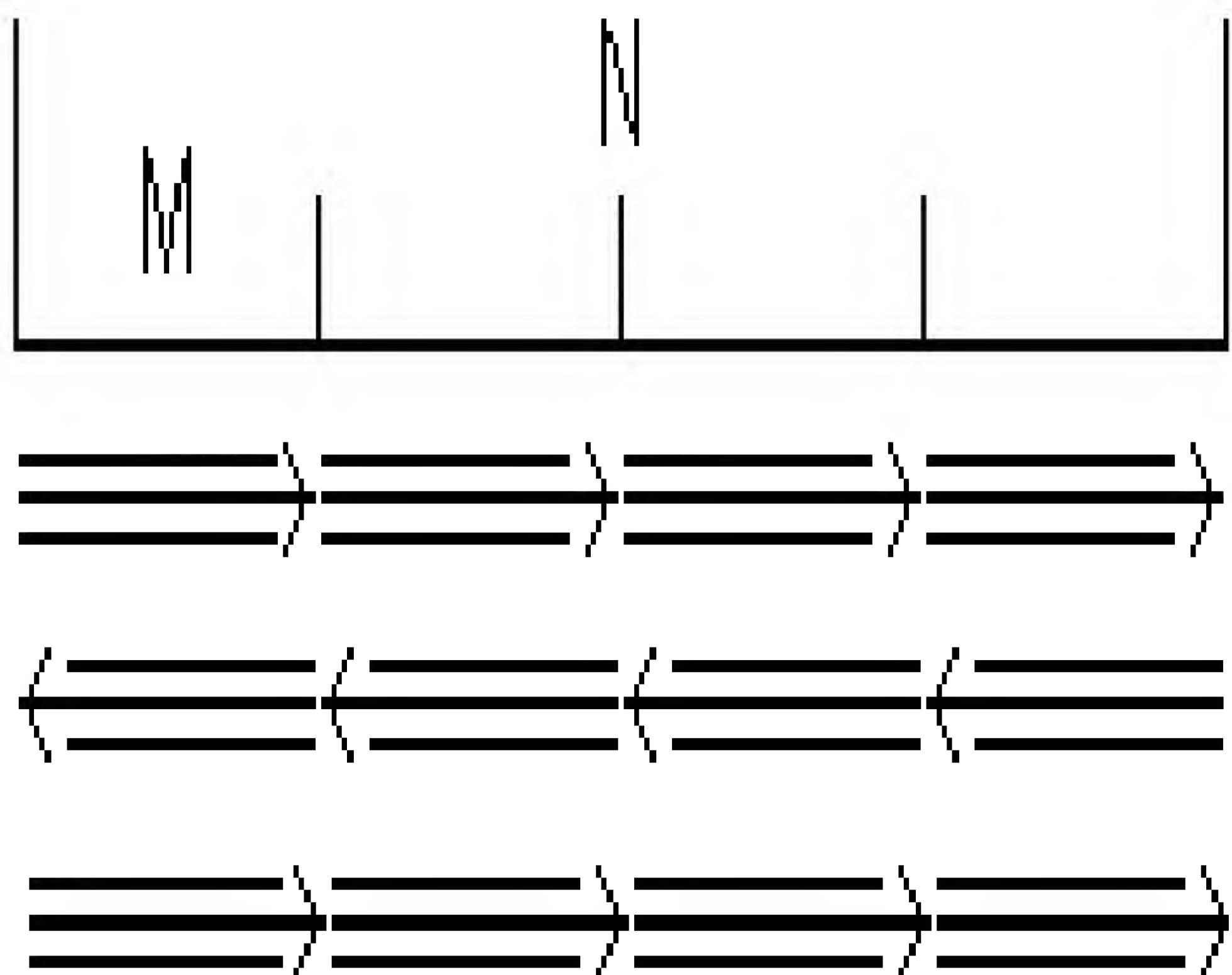
**FIG. 21**

$M \ll \sqrt{N}$ :

1:  $\sim M$  load

2:  $\sim M$  sum

3 \* 2:  $\sim M$  right move



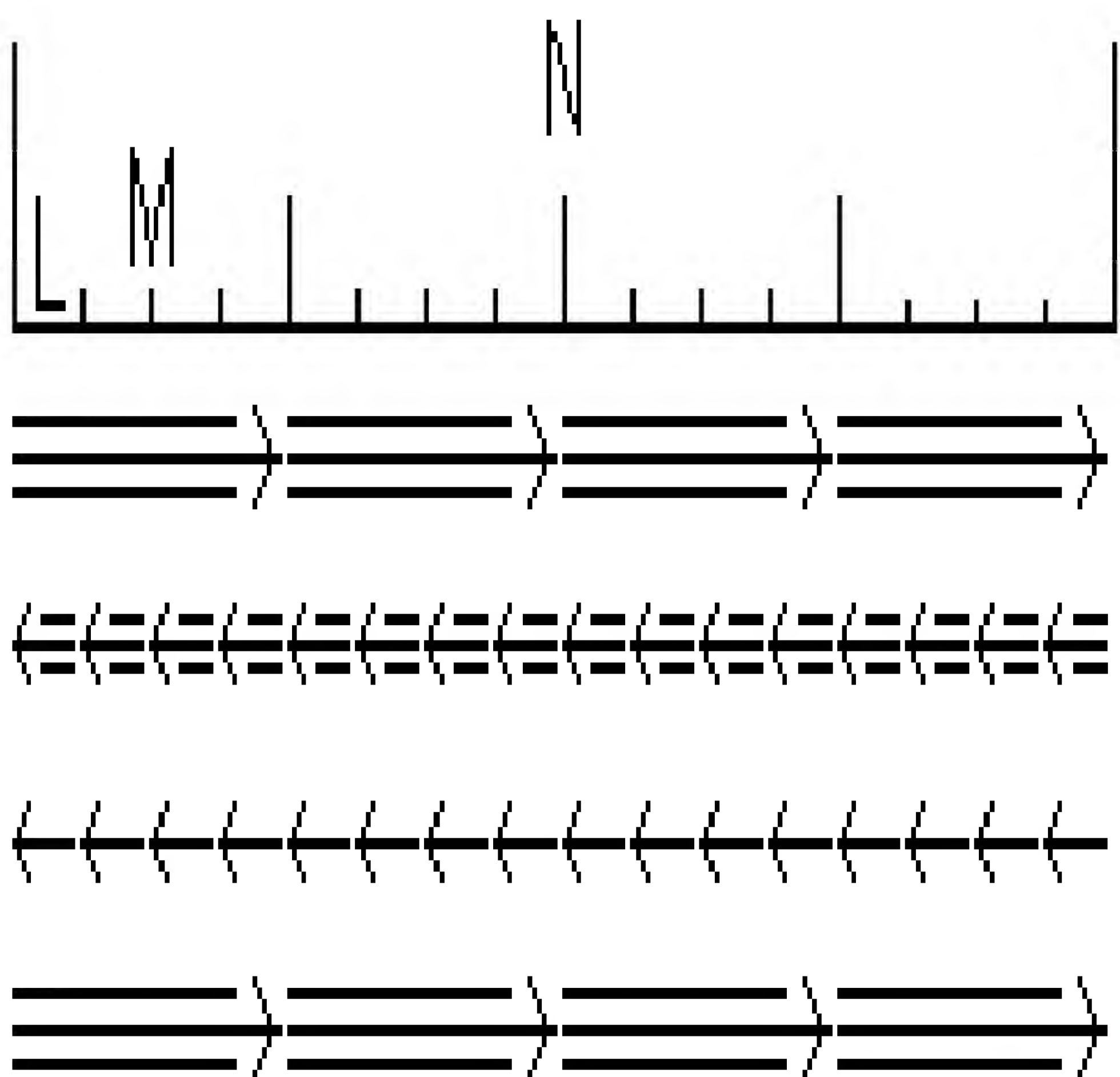
$M \gg \sqrt{N}$ :

1:  $\sim M$  load

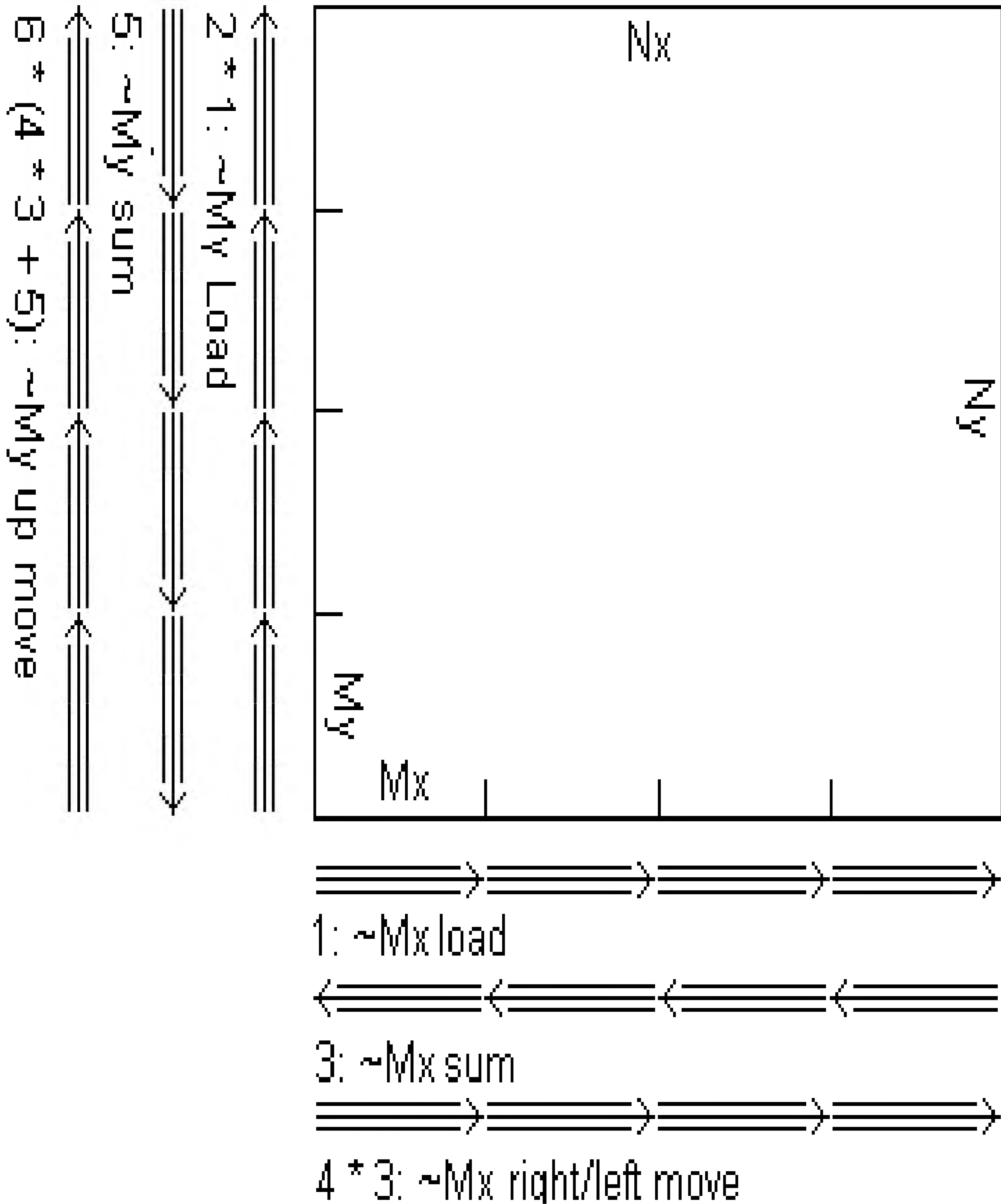
2:  $\sim L$  sum

3:  $\sim (N / M M / L)$  sum

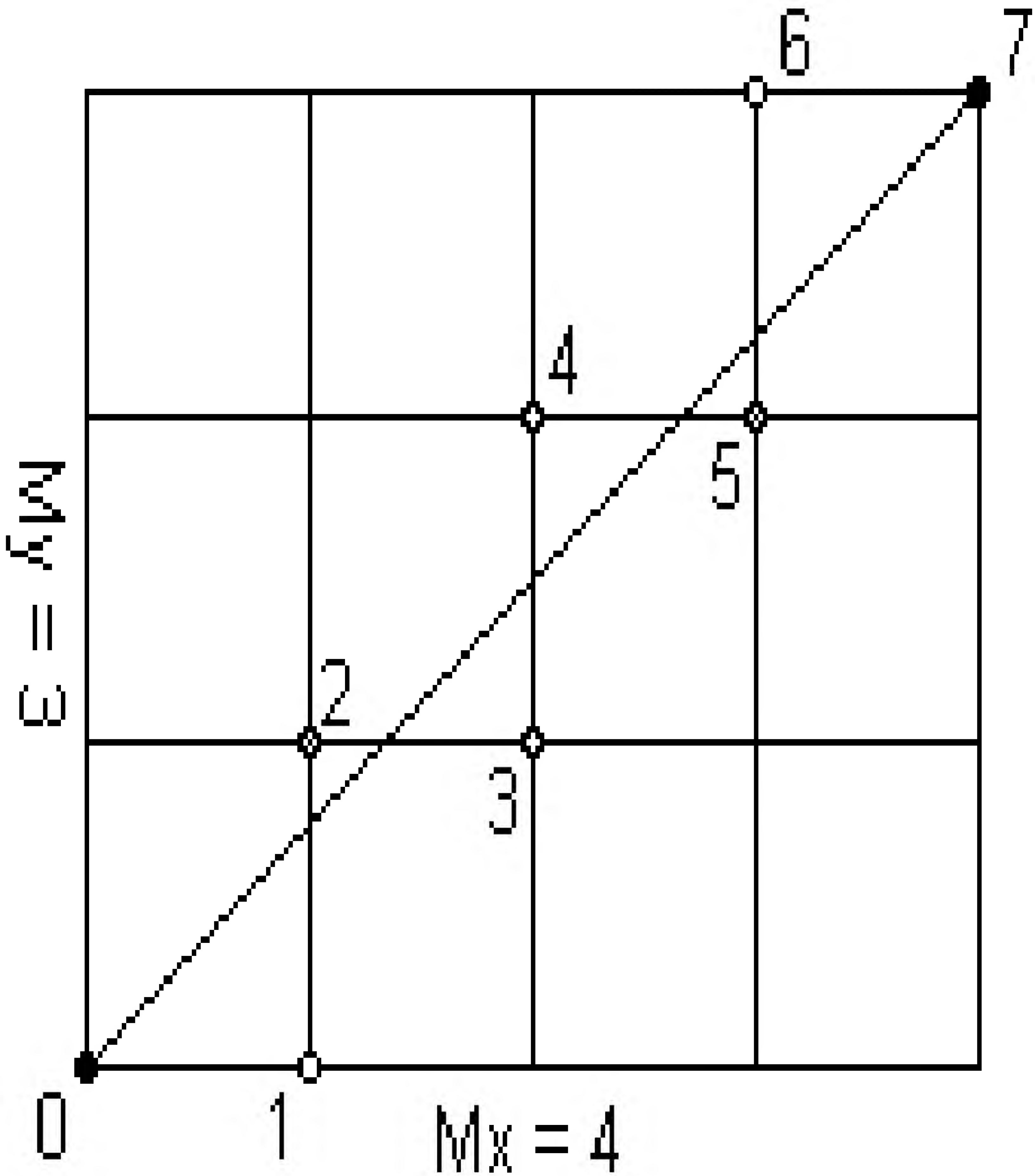
4 \* (2 + 3):  $\sim M$  right move



**FIG. 22**

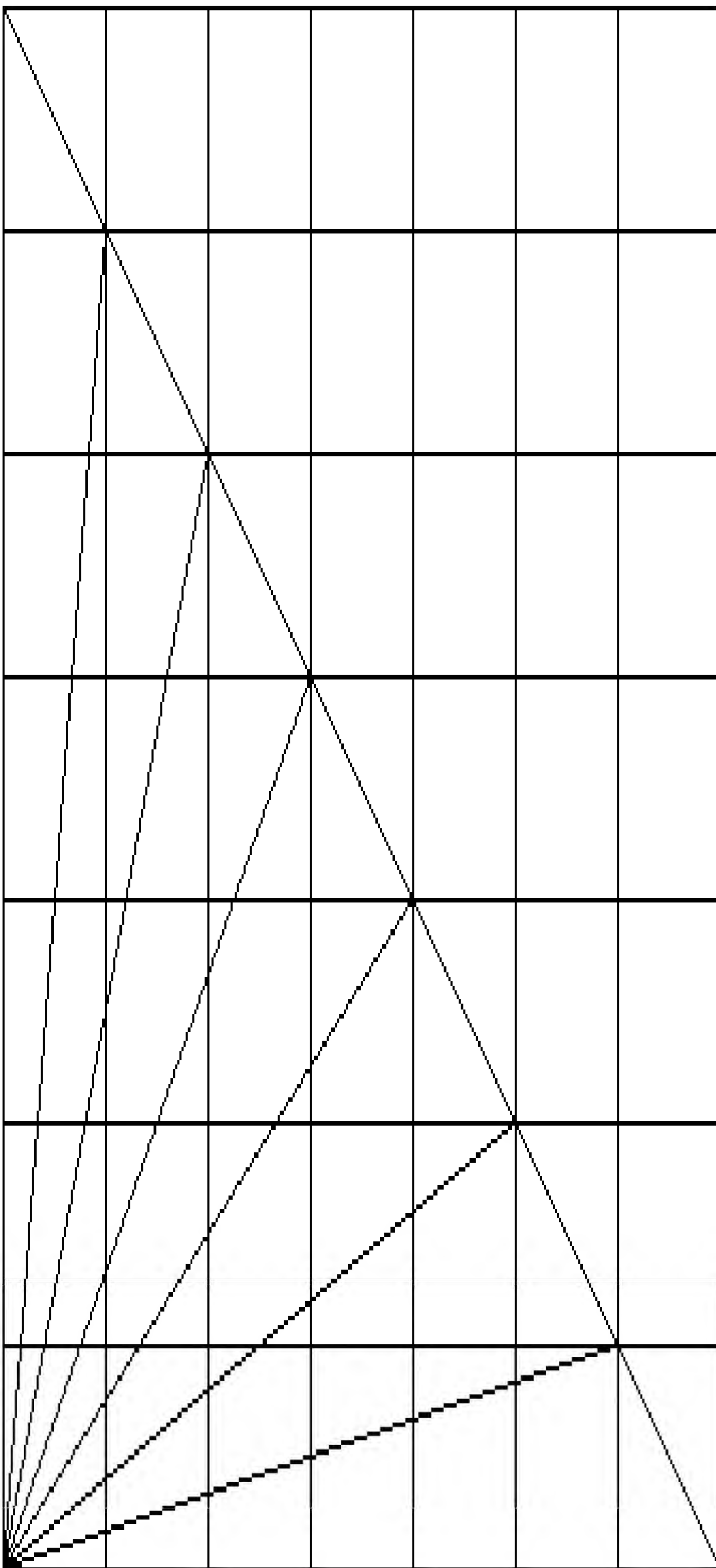


**FIG. 23**

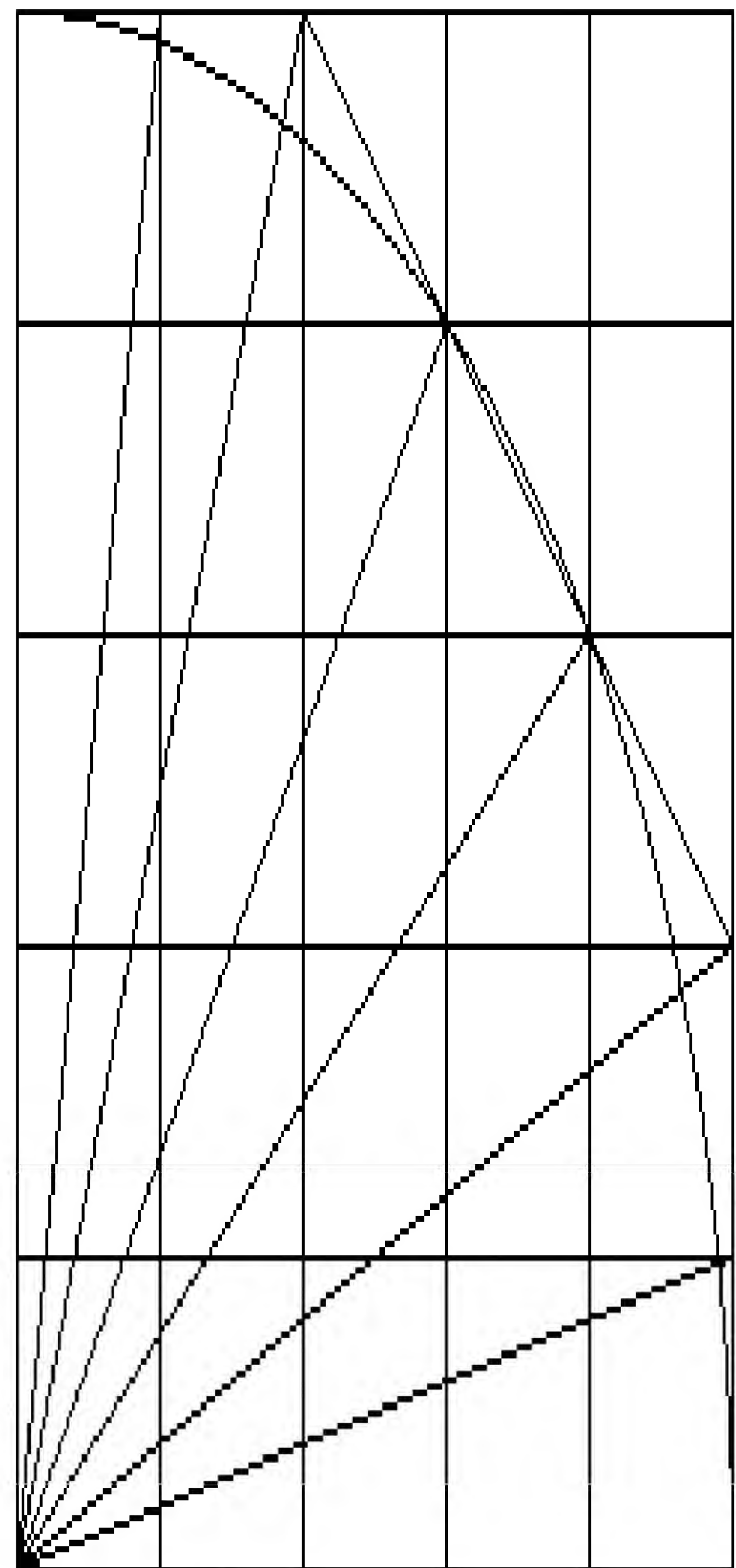


**FIG. 24**



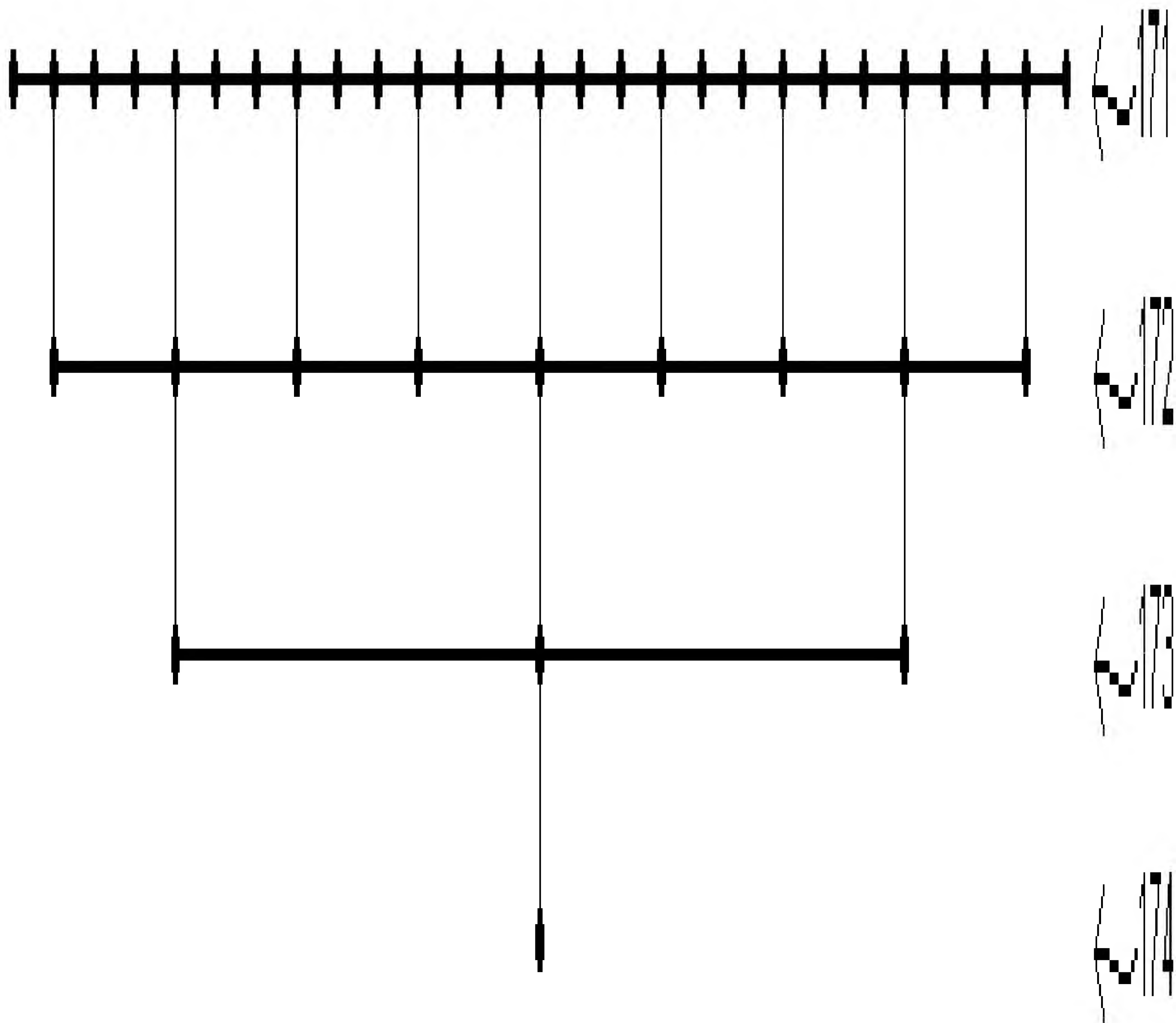


**FIG. 25a**



**FIG. 25b**

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26



26  
8  
3  
1

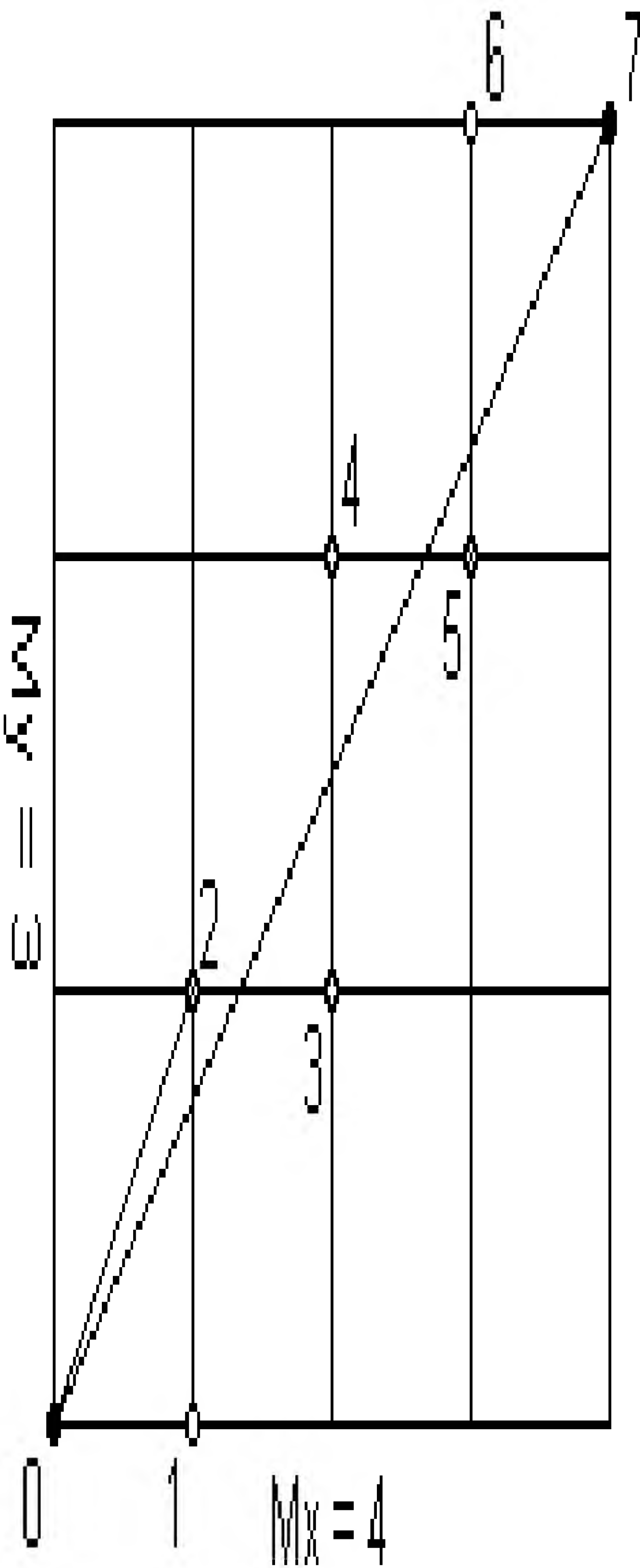


FIG. 27a

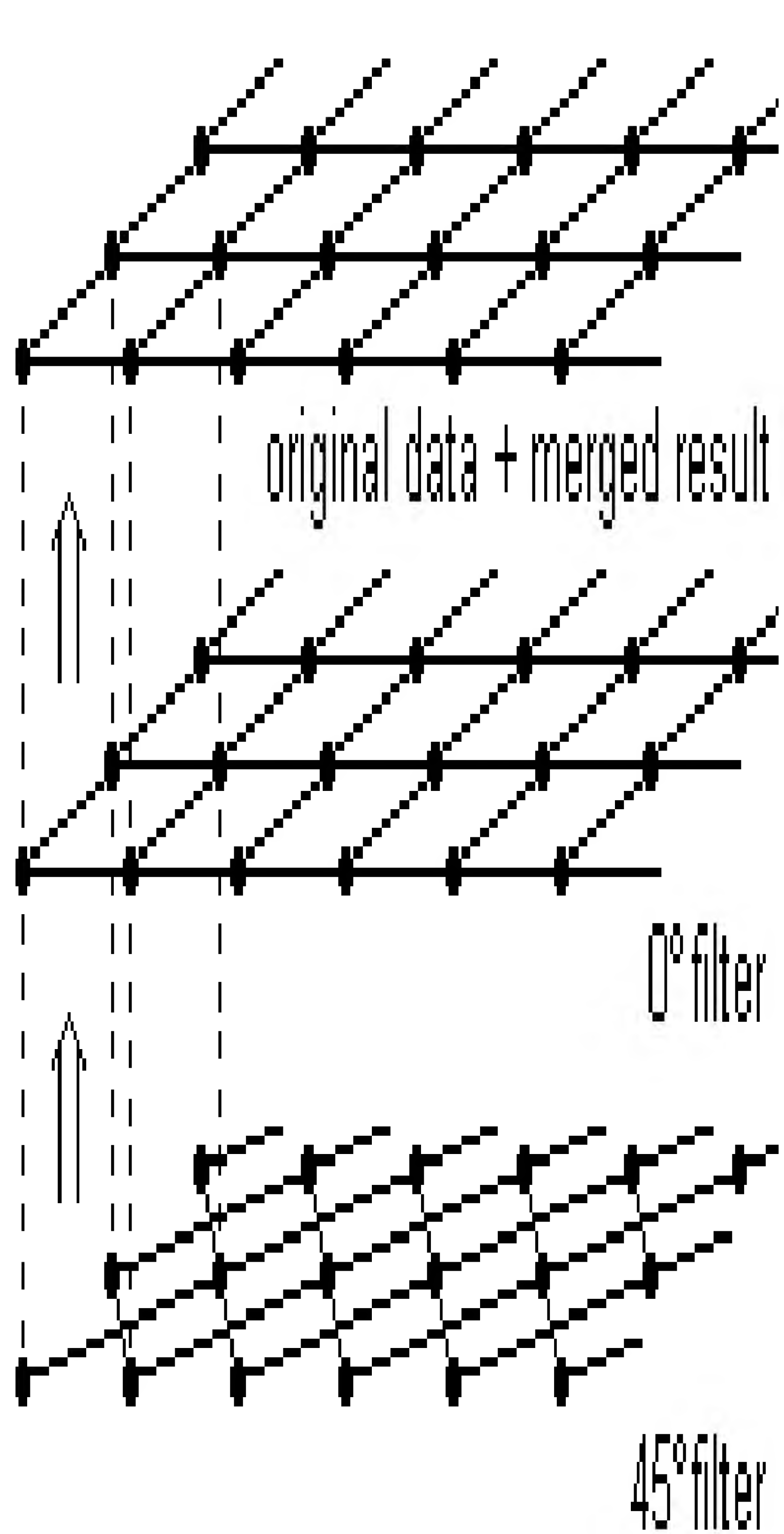


FIG. 27b

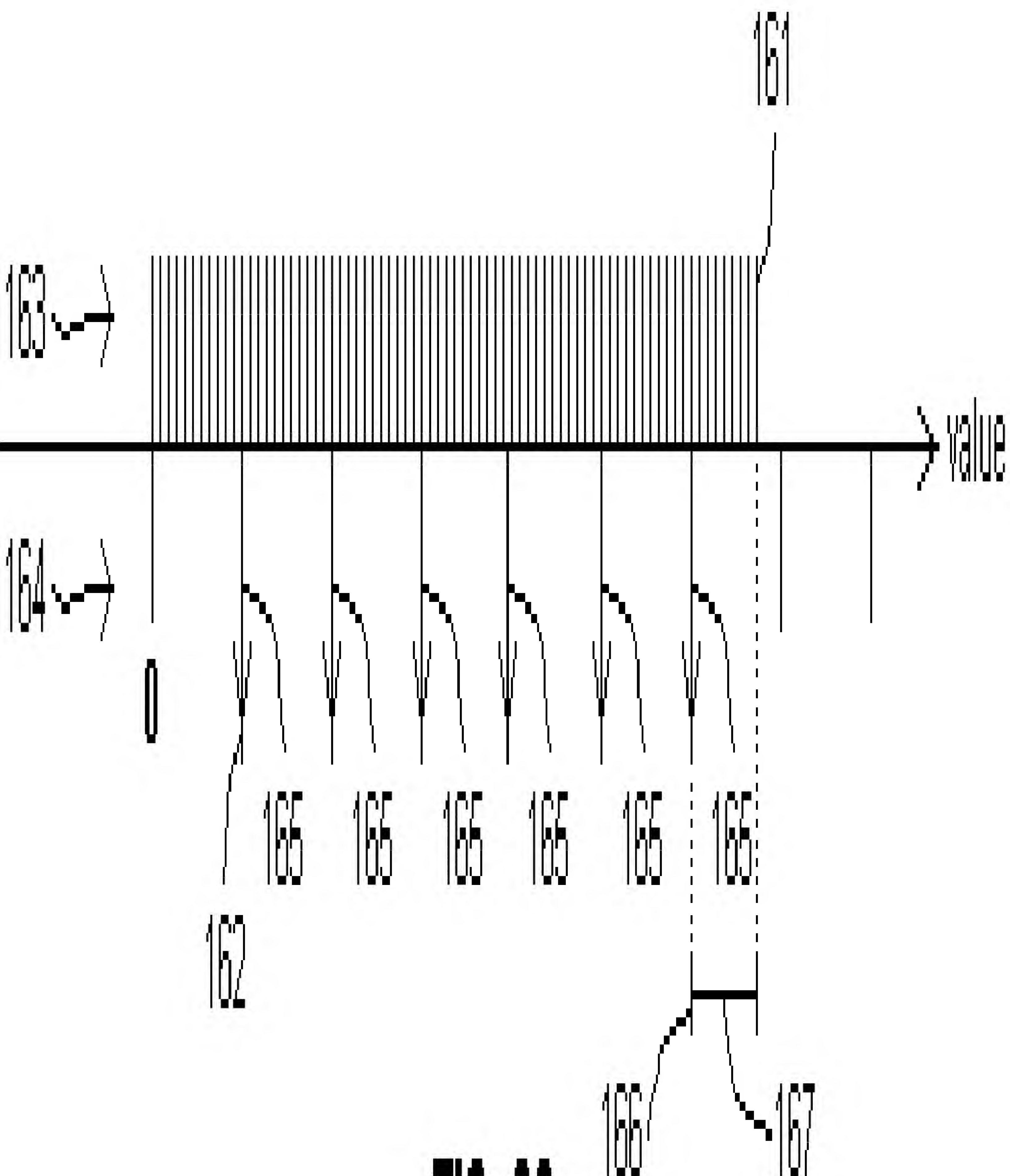
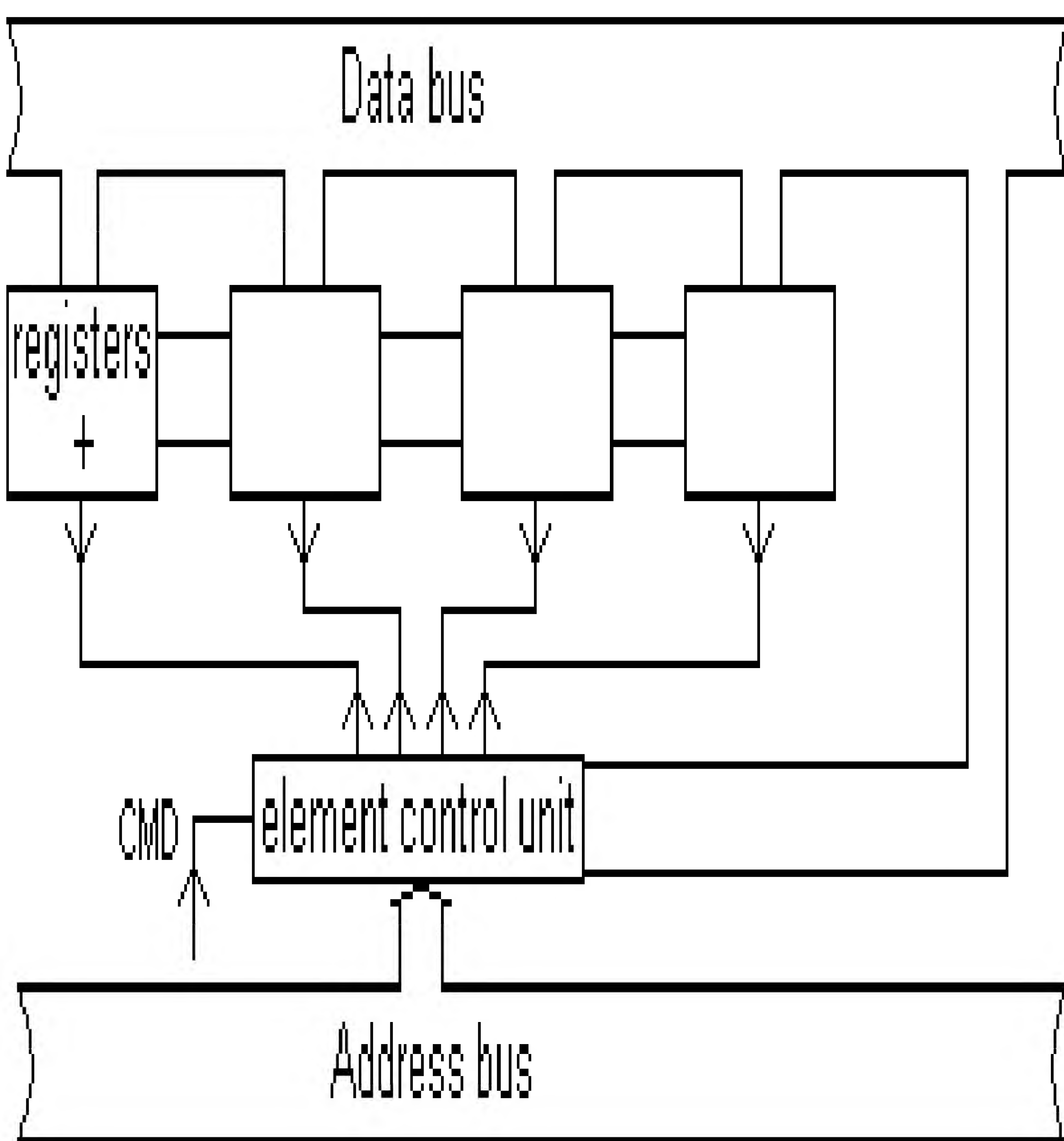


FIG. 28



**FIG. 29**